

COAL AGE

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Hanging the Wrench on the Safety Valve

UNMISTAKABLE evidence of the public belief—amounting to conviction in fact—that coal must be regulated is offered by the reception of the Calder Coal Act. Coal is an essential to our comfort, industrial progress and prosperity; the industry has recognized and proclaimed this every time it has asked for preferential treatment, as in transportation. Clever publicity on the part of the Senate committee has crystallized public sentiment, aroused for months last year, and in the case of anthracite even yet, by high prices, to the point where the public has come to believe that Federal legislation regulating and controlling coal is essential and more than warranted and that the Calder bill must be quite the proper thing because it is proposed by the Senator who has “exposed” the inequities of the coal trade.

As a measure intended to fully assure the consumer of a cheap supply of coal the Calder bill has several serious faults, the most obvious of which is that it specifically exempts the small fry who in every market flurry have been the chief cause of trouble. However, we will not now discuss the technicalities of the bill but rather the premise on which it is based—namely, that “coal, its production and distribution are charged with public interest and use.” If this be the dictum of Congress, then coal becomes in a class with regulated public utilities. Though the measure now being considered does not go so far with the coal industry as other laws do with the railroads and municipal utilities it is plain that this is but the first step. And because it is the first step toward permanent and more or less complete regulation the coal industry has been and is opposed to it, just as it was openly opposed to any form of government interference with the industry last year.

The point of view of the man who produces, sells and trades in coal in this regard is perfectly reasonable and natural. It is but that of any American business man who prefers to conduct his own business in his own way without interference. The all-important question for the coal industry to decide is whether the public has concluded it necessary to take a hand in his affairs, and, if so, if the conclusion is warranted. A manufacturer of woollens said to us recently that until 1920 his industry had never recognized public opinion as a factor in its affairs, but that public opinion was a factor and had made itself felt in no unmistakable manner. The public revolted at the high prices of woollen goods and by refusing to buy even needed clothes had forced prices from \$6 per yard down to \$3 and even lower.

The public cannot get along without coal, however, as it can without new clothes, and that is one reason why coal will get different treatment than some of the other industries that have touched the “pocketbook nerve” of the people during the last two years. Coal

is coal to the consumer; talk coal to any individual in the East, and though he be a large manufacturer and therefore a user of steam coal, his thoughts turn to his personal expenditures for anthracite. So far it has not been possible to get the outsider to differentiate between the two industries, anthracite and soft coal, regarding which we have said that what can be said with respect to the one cannot be said to be true with regard to the other. Anthracite is a natural monopoly; its production is in the hands of a few closely-controlled companies; it has not suffered from lack of car supply and a vastly greater percentage of the total output is used in homes and it therefore concerns the individual Anthracite has become a luxury for many and unless adequate substitutes are found and developed quickly the hard-coal industry must be regulated, either from within, as by legislation permitting the large companies to absorb the independents, or by the Federal Government.

Bituminous, on the other hand, has none of the earmarks of a monopoly. There is no possible means by which the supply can be monopolized. Were there no Sherman law and the going concerns engaged in the production of bituminous coal were formed into one or more huge combines agreeing to sell the public its soft coal at cost, we would have no solution for the problem of high prices in times of shortage. Just as soon as a condition should arise that the demand exceeded the car supply at the mines of the combines, other individuals would enter the field in competition with such a trust, and because it is so simple to find coal land and to open a mine we would within thirty days after a shortage developed have free-lance coal at fancy prices, and the quantity of such high-priced coal that would be available would increase not slowly, as the oak grows, but swiftly as weeds thrust up their heads. Incidentally the Calder bill would let the weeds grow to plague all.

The soft-coal industry has none of the elements of a monopoly. The government cannot give to a limited number of producers a franchise limiting their activities and protect them in their profits by any such simple methods as are proposed by the Calder bill. The legislation proposed merely hangs a monkey wrench on the safety valve; it does not provide for reducing the pressure. Back of the inability of the soft-coal producers to meet the demand for coal last summer was a lack of car supply, and the fundamental cause of failure to fulfill contracts was the needless dispersion of available transportation and of labor. Licensing producers and jobbers and requiring any number of reports from them should not in itself be objectionable to the coal trade. Our opposition to the work of the Calder committee has been based on the fact that it has spent its time proving the already admitted fact of high prices and endless

passing of coal from jobber to jobber, with added increments of price, and that it has shown no disposition to study the problem, and our objection to the Calder bill lies in its objective—namely, to sit on prices, without attempting in any way to control or remedy the cause of the high prices.

It is no cause for dismay that the fight in Washington has centered on the National Coal Association, but rather one for self-congratulation, for the industry put its national organization there for just that purpose—to look after the interests of the coal producer. Every issue has been fairly and squarely met by its officers; there has been no dragging of a herring over the trail. Rather than admonish the jobbers to cease gloating over the position of the coal association we would suggest that they take their heads out of the sand and take a squint at the black cloud on the horizon. The record of the wholesalers in New York City shows that they were far more foresighted than many of their brethren, for their membership long ago made a part of their published creed the essential requirements of Senator Calder's bill in regard to the jobbing of coal.

Mixing Technical and Trade Functions

PURCHASE by a central agency in the Bureau of Mines of all coal used by the government except that for the navy is proposed in a bill now before the Calder committee of the Senate. Arguments in favor of this legislation are predicated on the excellent record of the Government Fuel Yard at Washington, conducted under the auspices of the Bureau of Mines. It is argued that the actual selection and purchase of millions of tons of coal used by Federal agencies at a thousand points in the United States should be turned over to a technical bureau, as a measure for insuring an uninterrupted supply of cheap coal.

Coal for Federal buildings scattered throughout the country is now purchased through the General Supply Committee in the Treasury Department, for Indian schools by the Bureau of Indian Affairs, for the army by a bureau of supply in the War Department, etc.

We have serious doubts as to whether, had the Bureau of Mines been charged with the coal supply for all Uncle Sam's requirements, the record made in handling that for the District of Columbia could have been extended over all transactions. It will be recalled that the chief engineer of the Fuel Yard was unable to obtain bids last spring for his requirements and that he has been obliged to get much of his supply in the open market this fiscal year. That coal was obtained during the summer of 1920 to meet these needs at prices averaging less than half the open-market quotation reflects credit not so much on the superior buying ability of the Bureau of Mines as on the good will of those operators who, at the solicitation and behest of the officers of the National Coal Association, "squeezed" out a car or so each week and patched up the needs of the government departments. Mr. Pope, who handles the Fuel Yard at Washington, gives full credit to the operators in his published report of operation.

This proposal to buy all Federal coal (except for the navy, which Mr. Daniels would continue to commandeer by permanent legislation) is supported mainly on this record, which to us appears a mighty dubious argument. What has proven to be an excellent method of handling a large tonnage in such a restricted area as the District

of Columbia would, we fear, be a top-heavy arrangement for the United States as a whole.

Director Bain of the bureau advances off-handedly the argument that his field force of safety engineers and mine-rescue crews is available to buy this coal, as if anyone could perform this function without special knowledge and without interference with regular tasks. Why not put them also on the work of army recruiting and grain inspection?

Should the Bureau of Mines procure this legislation and the necessarily large new organization be built up to execute it, there would follow no decrease in the personnel or of expenditures in the other Federal offices now buying coal, for such is not the way governments function. Rather we should have only a large increase in annual appropriation by the Congress without a compensating saving.

We would suggest instead that provision be made for technical supervision by liaison engineers from the Bureau of Mines in the other offices buying coal for Federal account, for it is because of its technical knowledge of coal, both as to kinds and utilization, that the Bureau of Mines can lay superior claim, and certainly not because of demonstrated better business organization or commercial talent.

The government can and should pay more attention to how, when and where its coal is purchased, but turning the whole job over to one bureau is not necessarily a panacea for all fuel troubles.

Every Workman Should Be a Capitalist

HAPPY is that country where every man is a capitalist, where every worker is producing a little more than he and his family is consuming and so is building up the fund for productive equipment whereby the world's future work is to be done. In too many countries capitalism represents the few and not the many, and if it were not for the savings of the few rich there would be no progress from year to year.

We have just passed through Thrift Week, but thrift is not a matter for a week's thought and fifty-one weeks of neglect. It is the daily duty of every good citizen. At the close of the past year the Lehigh Coal & Navigation Co.—a pioneer in the production of coal, a leader in company beneficial funds—led the way among anthracite companies in offering stock to its own employees and to the employees of its subsidiaries, the Alliance Coal Mining Co., the Cranberry Creek Coal Co. and the Panther Valley Water Co.

Other companies might well do the same. Thrift is abundantly worthy of encouragement. As has been well said, much of the crime and still more of the misery of the world and much of its hard times, the jerky stops and starts of industry, would be saved if all men and women were prudent investors. The offer of the company is so extremely generous that it would be indeed strange if at least 50 per cent of the employees failed to express a desire to avail themselves of it. As the number of shares is 2,500 and all who apply can get from two shares to five shares, doubtless there will be many of the 8,500 or more employees who will put in their applications too late to receive the excellent offer made them. Unfortunately there are too many whose desire to clip bonds and draw dividends is not backed up by a readiness to lay by for that end. They want to participate in the earnings of capital but not to contribute their savings to operating investment.



FIG. 1. EXTERIOR OF WESTON BREAKER, LOCUST MOUNTAIN COAL CO.

New Methods Are Used for Preparing Small Sizes by Locust Mountain Coal Co.

At Their Weston Colliery Breaker the Sizes Below Pea Are Scrupulously Cleaned by Concentrating Tables and a Specially-Designed Jig—Success Is Attained in the Washing of These Fine Coals

BY DEVER C. ASHMEAD
Wilkes-Barre, Pa.

ANTHRACITE coal companies have differing views as to the importance of a careful preparation of their product. Some firms feel that all that is necessary is to give the coal sufficient preparation to enable it to "get by." Others take pride in the excellence of their preparation and strive to make their product as clean as is physically possible. This latter attitude, while quite marked as to the larger sizes, is gradually manifesting itself in regard to the entire output of the mine, and many companies are installing devices and equipment to reduce the amount of refuse contained in the smaller grades of coal.

One reason for the little care being exercised in the preparation of the small sizes lies in the fact that impurity is less readily detected by visual examination in them than in the larger sizes. Any great amount of extraneous material, such as bone or slate, mixed with the larger pieces of coal may be readily perceived, whereas with the small sizes this would be difficult, if not almost impossible.

Within recent years the art of coal preparation has advanced and many new devices have been placed on the market to obtain better results than were formerly possible. It is not my intention to discuss here the various types of preparation machinery, but to deal

with the methods now in use at the breaker of the Locust Mountain Coal Co. near Shenandoah, Pa., and to call attention to some new devices employed at this plant.

The breaker is a comparatively new one, its construction having been completed in 1914. The owning company has been by no means satisfied with existing methods and has been, and still is, making improvements wherever possible, particularly in the methods employed upon the sizes of coal smaller than buckwheat No. 1. No marked improvements have been made in the methods used in preparing the larger sizes, although even these receive a preparation somewhat different from that ordinarily accorded them at other breakers.

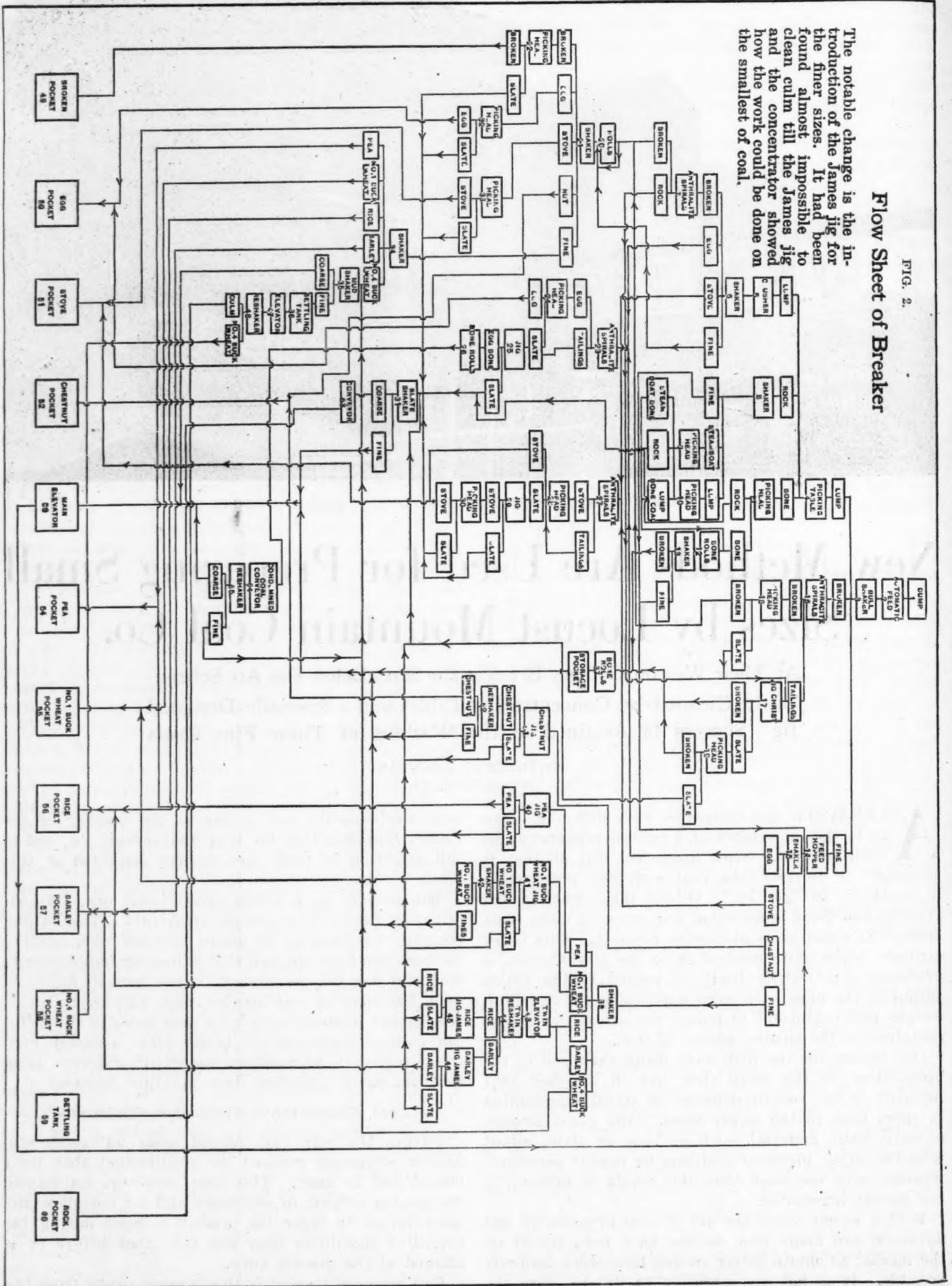
COAL COMES FROM MINES AND STRIPPINGS

During the war just passed some anthracite-producing companies reduced the requirement that their output had to meet. This firm, however, maintained its pre-war criteria of excellence and did not allow any more refuse to enter the product shipped during the period of hostilities than was permitted before or is allowed at the present time.

Raw material treated in this breaker comes from two distinct sources, both lying, however, in the same coal

FIG. 2.
Flow Sheet of Breaker

The notable change is the in-
production of the James jig for
the finer sizes. It had been
found almost impossible to
clean culm till the James jig
and the concentrator showed
how the work could be done on
the smallest of coal.



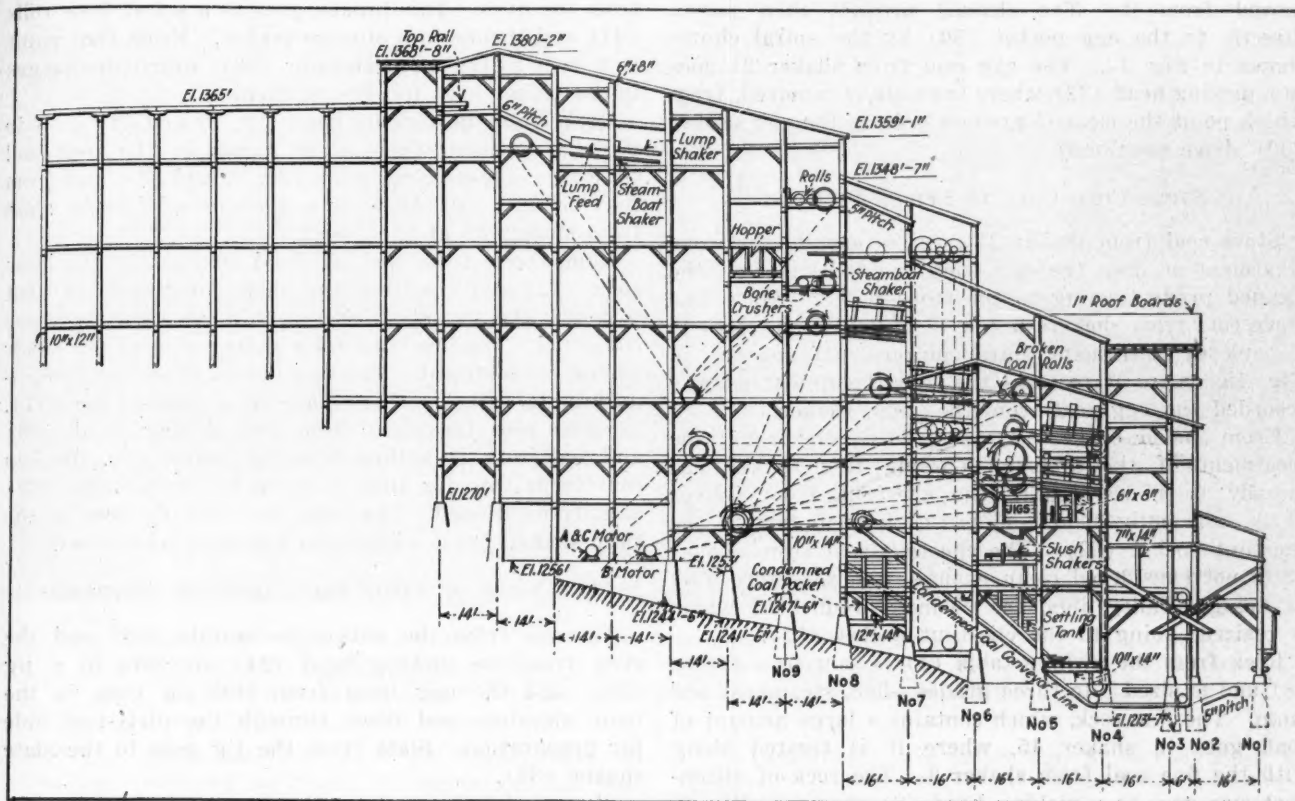


FIG. 3. CROSS-SECTION OF BREAKER

From the top of the lower foundation piers to the comb of the roof the difference in elevation is almost 154 ft. This illustration and Fig. 4 give some idea of the multiplicity of machinery and mechanical appliances through which anthracite coal is passed in the process of preparation.

measures. Approximately one-half of the coal comes from strippings and the other half from underground operations. Fig. 1 is an illustration of this breaker and gives some idea of its size. Owing to the extremely complicated nature of the flow sheet as prepared by the company it is impossible to reproduce it in its entirety here. A somewhat simplified flow sheet, however, is shown in Fig. 2. Reference numbers appearing in the text appear also in this diagram, making it thus somewhat easier to follow the movement of the coal through the various processes. Cross-sections of the breaker are shown in Figs. 3 and 4.

DUMPMAN CONTROLS APPROACH OF MINE CARS

From the thaw shed, which is not shown in any of the illustrations, the coal cars are dropped by gravity across the trestle shown in Fig. 5 to the dump (1). Just before reaching the dump the cars come to a dead stop and are moved from this point by a small go-devil to the block shown in Fig. 6. From this point the man operating the dump may release the cars as fast as he chooses, whereupon they move by gravity to the point of discharge. This gives the dumpman complete control of the rate of approach of the mine cars and prevents clogging. The dump shown in Fig. 7 is operated by compressed air and has a capacity of one hundred and thirty 5-ton mine cars per hour. Only one man is required to handle and operate this arrangement. Two men are, however, kept on the job to be ready in case a car should leave the track, or the wheels should stick.

The coal thus discharged is deposited in a bin. In this process it is separated into two approximately equal parts by a gable or ridge in the center of the pocket. From this container the coal is fed by an

automatic feeder (2) to the bull shakers (3). This gives an even feed to the screens. Two sets of these shakers are employed, one of which is shown in Fig. 12, and they make three separations—lump, broken and finer coal.

Lump coal from the upper deck of the bull shaker passes to a picking table (4). There are two of these tables, one for each shaker. On these picking tables three separate products are made. The rock is picked from the coal, and the bone is removed separately. The lump coal itself goes to a crusher (5), from which it passes to a shaker (6) which has three decks and makes the following sizes: Broken, egg, stove and finer material. The broken goes over a set of anthracite spiral pickers (7), wherein the rock is separated.

Broken coal from the bull shaker (3) passes over a set of anthracite spiral pickers (16), where the coal is cleaned, after which it goes to a picking head (18), where the slate is separated from the coal and the cleaned product then mixes with the broken coal from the first anthracite spirals (7). This material then goes through a set of rolls (20), from which it proceeds to a shaker (21), which separates it into broken, egg, stove, chestnut and fine. The broken coal then goes to another picking head (22), where the slate that it still contains is separated from it and where the cleaned product is sent to the broken pocket (49).

Fine coal from bull shaker 3 passes into a feed hopper (14). Thence it is sent to a shaker (15) which makes four sizes—egg, stove, chestnut and fine. The egg coal from this shaker unites with the egg from shaker 6 and goes by means of a shaking chute to a battery of anthracite spiral pickers (23). These separate the clean coal from the tailings. The coal goes to a picking head (24), where the slate is re-

moved from it. The cleaned product then passes directly to the egg pocket (50) by the spiral chutes shown in Fig. 14. The egg coal from shaker 21 goes to a picking head (32) where the slate is removed, from which point the cleaned product goes to the egg pocket (50) above mentioned.

STOVE COAL GOES TO SPIRAL PICKERS

Stove coal from shaker 21 receives exactly the same treatment as does the egg from the same shaker, the cleaned product going to the stove pocket (51). The stove coal from shakers 6 and 15 is united and goes to a bank of anthracite spiral pickers (27) shown in Fig. 15, where it receives the same treatment as was accorded the egg coal from the same shaker.

From shaker 6 the fine coal goes to shaker 21; the treatment of the material passing this shaker has already been described. The chestnut from shaker 21 is sufficiently clean and passes immediately to the chestnut pocket (52). The chestnut coal from shaker 15 is not considered clean enough, and therefore goes to Lehigh Valley jigs, the cleaned product of which is resized, going to the chestnut pocket (52).

Rock from the picking table (4) is sent to a shaker (8) and is sized into three grades—fine, steamboat and lump. The fine rock, which contains a large amount of coal, goes to shaker 15, where it is treated along with the fine coal from shaker 3. The rock of steamboat size goes to a picking head (9) shown in Fig. 9. The lump rock likewise goes to a picking head (10). Three separations are here made—steamboat bone coal, rock and lump bone coal. The bone from picking table 4 goes to a picking head (11), where the rock is separated from the bone. This bone and the steamboat bone, heretofore mentioned, pass to a set of rolls (12); where they are crushed. From this point they proceed to a shaker (13), where the broken is removed

from the fines. This broken goes to a set of bone rolls (37) and thence to a storage pocket. From that point it is sent to the main elevator (53), which discharges to the shaker (15) for re-treatment.

Rock from the picking heads (9, 10 and 11) goes to the slate shaker, where it is joined by the rock and slate from the picking heads (22, 32 and 33), and from the chestnut jig (61). It is also joined by the slate from shaker 31 at this point.

Lump bone from picking head 10 goes to the bone rolls (12) and receives the same treatment as that to which the steamboat size of this same material was subjected. The fine bone from shaker 13 goes to shaker 15 for re-treatment. Tailings produced on the broken-anthracite spiral pickers pass to a Christ jig (17), as does also the slate from the picking head (18) and that from the anthracite spiral pickers (7). Broken coal from this jig then goes to the bone rolls (37) already mentioned. The slate from the jig goes to the slate shaker (31), which also has been mentioned.

ALL SIZES OF COAL ARE CAREFULLY PREPARED

Tailings from the anthracite spirals (23) and the slate from the picking head (24) are sent to a jig (25), and the egg bone from this jig goes to the main elevators and down through the dirty-coal side for preparation. Slate from the jig goes to the slate shaker (31).

Slate and tailings from the stove spirals (27) and the picking head (28) likewise pass to jig 29, but the stove coal from this jig is not crushed, but goes to a picking head (30) and the cleaned coal to the stove pocket (51). The slate from the jig and from the picking head goes with the rest of this material to the slate shaker.

It is a mistaken idea to suppose that in a modern breaker of this kind only the sizes above pea are

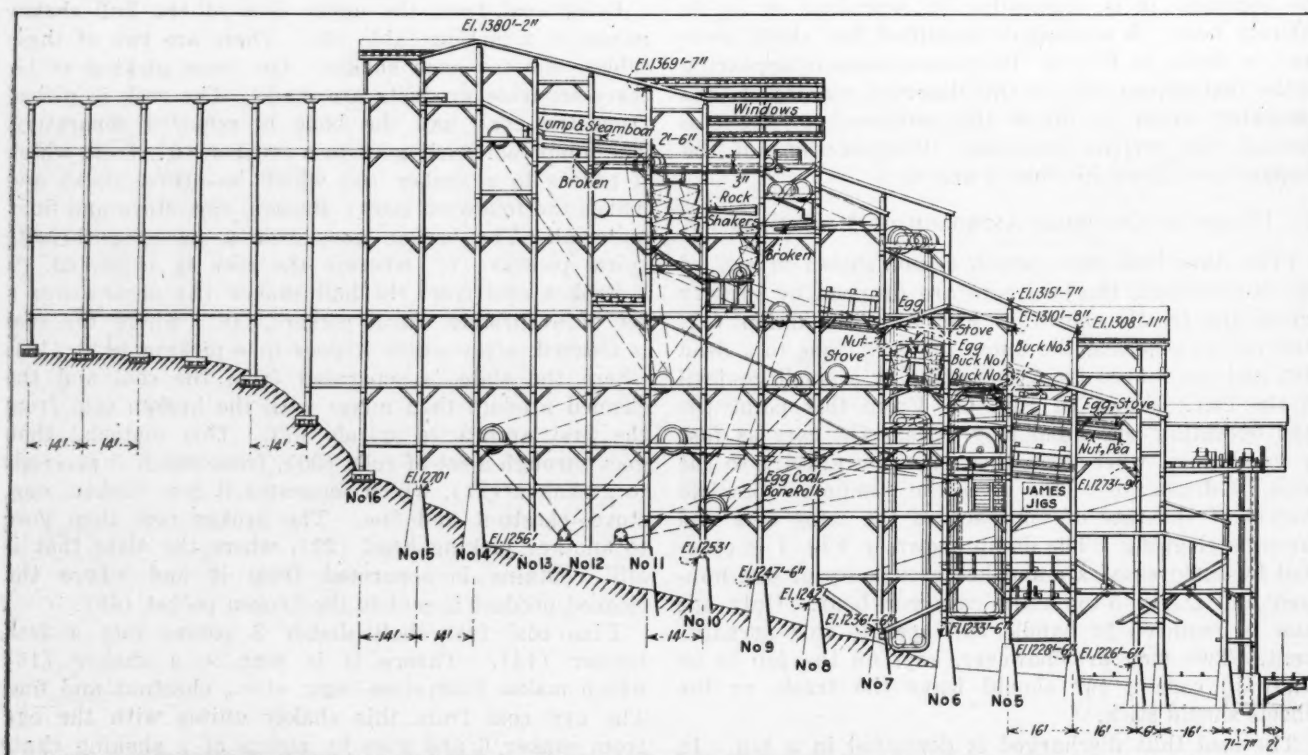


FIG. 4. ANOTHER CROSS-SECTION OF THE BREAKER

Here can be seen more details of that part of the breaker which handles the fine coal—the jigs, the slush shakers, the settling tanks and condemned-coal-conveyor line and pocket.

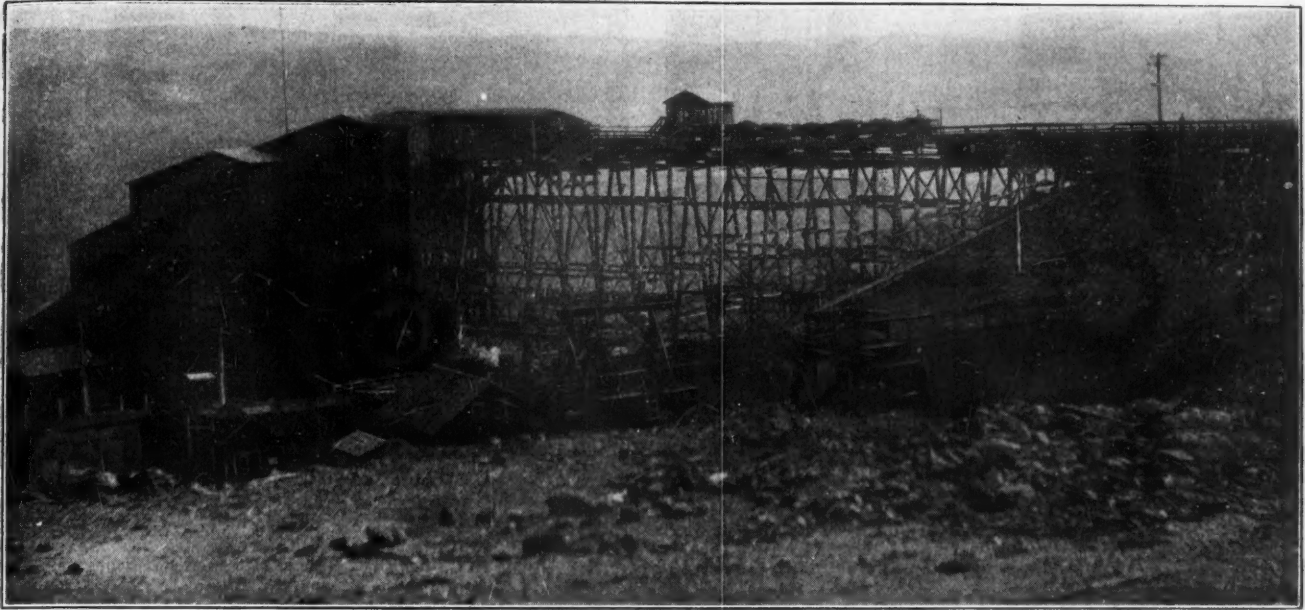


FIG. 5. SIDE VIEW OF BREAKER BUILDING AND OF THE TRESTLED TRACKS BY WHICH IT IS APPROACHED

At the end of the trestle to the right beyond the edge of the illustration is the thaw shed, which during the winter raises the coal to the right temperature for treatment in the breaker. Coal taken from strip pits and coal from the mine that has been long in transit is apt to be frozen hard in the cars and must be thawed out.

prepared. As a matter of fact the smaller sizes are nowadays receiving as much, if not more, and also equally careful treatment as are the larger sizes of anthracite.

Really two complete methods of treatment for the finer sizes of coal are found in this breaker. The fine coal that comes from the clean-coal shakers is treated by one method, and that from the dirty-coal shakers is treated by another. As might be expected, the fine material coming from the clean coal does not require the same treatment as that coming from the dirty sizes. As a result, fine coal from shaker 21 passes to shaker 34, which is a four-deck machine where pea,

No. 1 buckwheat, rice, barley and No. 4 buckwheat are made.

TABLE REMOVES TWO-THIRDS OF THE ASH

Pea coal from this shaker does not receive any further treatment, but goes to its pocket (54); neither does the No. 1 buckwheat, rice nor barley, but each passes to its respective pocket and is ready for shipment. No. 4 buckwheat, however, goes to a mud shaker (35), where the coarse particles are separated from the extremely fine ones. At this point the coal passes through a most interesting process, at present in an experimental stage. Instead of sending this material

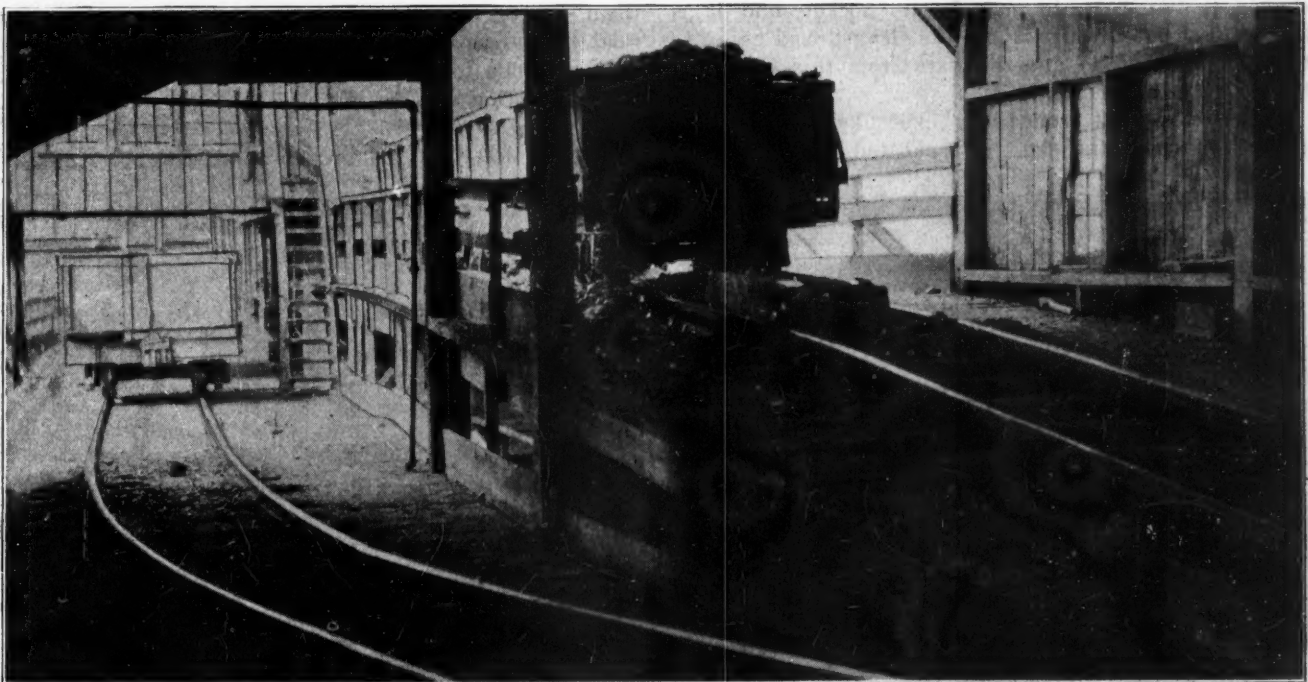


FIG. 6. TOP OF THE BREAKER WITH THE TRACKS ENTERING IT

Cars are moved by a "go-devil" to the block shown in the illustration. Here the man operating the dump releases them, sending them to the point of discharge at his pleasure.



FIG. 7. COMPRESSED-AIR DUMP FOR MINE CARS

This dump has a capacity of 150 five-ton mine cars per hour. Only one man is needed to handle this dumpage, though two men are employed, the second man being available should a car leave the track or the wheels stick.

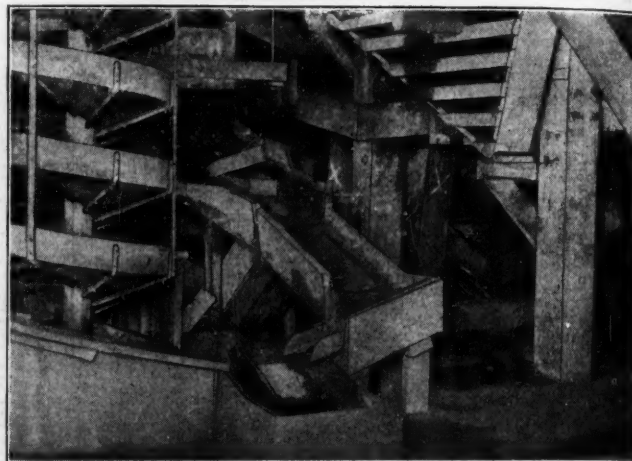


FIG. 8. BOARDS MARKED X SUPPORT RESHAKER

These boards act as a spring support, adequately replacing suspension boards for which, unfortunately, no room could be found. To the left is the discharge from the chestnut jig and further over are the spiral chutes for the cleaned nut coal.

directly to the pocket for shipment, or to the bank, this coal is sent to a James table (Fig. 10). Before treatment on this machine it contains about 30 per cent of refuse, but after it has been tabled it contains only a maximum of 10½ per cent of ash, while in many instances the ash does not exceed 8½ per cent. It is quite true that an appreciable loss of good coal takes place in the tailings from this machine, but in a short time these will be passed over a second table, and the good material largely reclaimed.

The fine coal from the mud shaker (35) goes to a settling tank (36), thence to an elevator (47), and thence to a reshaker which separates the culm from the No. 4 buckwheat. The buckwheat goes to the James table for treatment, while the culm is sent to the bank.

From the dirty-coal shaker (15) the fine material or that under chestnut sizes passes to another shaker (38) on which five sizes are made: Pea, No. 1 buckwheat, rice, barley and No. 4 buckwheat. The pea from this shaker is too dirty to send to its pocket, and it is accordingly put through a jig, the cleaned coal going to the pea pocket (54) and the slate from this jig going to the slate shaker (31).

No. 1 buckwheat from this shaker likewise goes to a jig (41), where the slate is separated from the coal,

the former going to a slate shaker, while the latter passes to a reshaker shown in Fig. 13. This reshaker is of considerable interest, for instead of being swung from above, as is ordinarily the case, it is supported on springboards from below. There was not sufficient room to place any rods above. The supporting springboards may be readily distinguished in Fig. 8, as they have been marked with the letter X. In this same figure may be seen the discharge chute from the chestnut jig and also the smaller chutes conducting the nut coal to its pocket. From the reshaker the properly sized material goes to the pocket (55), and the undersized, or fine stuff, goes to the main elevator and is taken back for retreatment.

SPECIAL JIG FOR SMALL SIZES OF COAL

Again we come to an entirely new device in the preparation of small sizes of anthracite. Some coal companies jig these small grades, while others treat them on concentrating tables. The Locust Mountain Coal Co., however, uses a new type of jig which has been modified to meet the requirements for this work. No description of this machine will be given, as *Coal Age* in the issue of Nov. 25 printed an article describing it in detail. This breaker and one belonging to

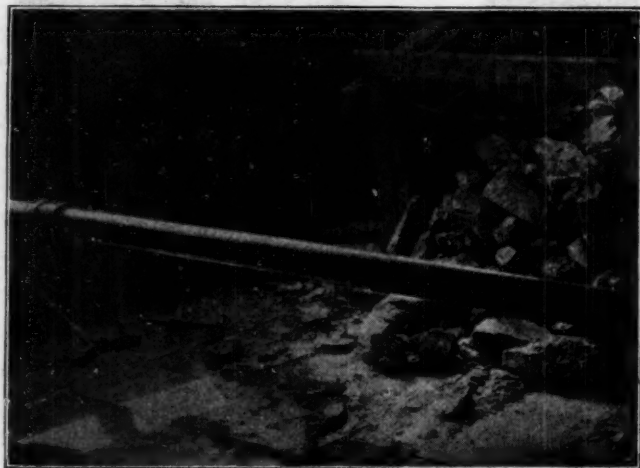


FIG. 9. STEAMBOAT ROCK IN PICKING HEAD

Coal of value often adheres to material that is classed as "rock" at the main picking table. The steamboat size of rock is separated from the fine and lump rock and goes to the picking head shown. Here the coal is removed by picks and sledges.

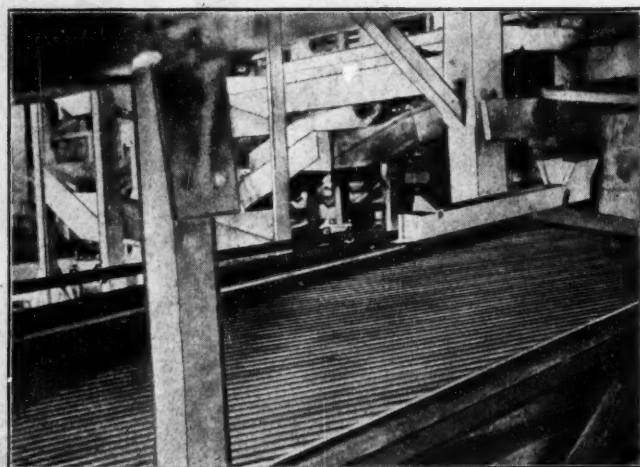


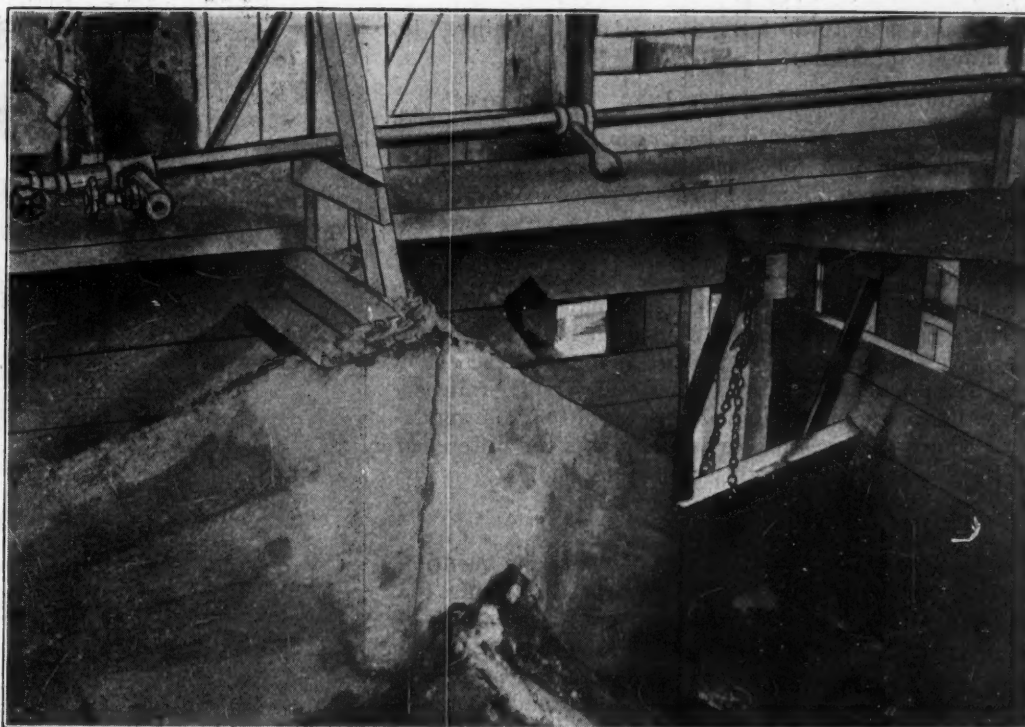
FIG. 10. NO. 4 BUCKWHEAT GOES OVER JAMES TABLE

Coal which contains, as most small-size fresh-mined anthracite frequently does, 30 per cent of ash has that impurity reduced to 10.5 per cent on this table and even in some instances to as little as 8.5 per cent.

FIG. 11.

Coal Hopper

A gable or ridge in the hopper separates the coal roughly into two parts where automatic feeders, not in evidence in this illustration, deliver the coal to the bull shakers, which give an equal feed to the screens.



C. M. Dodson & Co., both of which are under Weston Dodson & Co. management, are the only two that are using this type of jig at the present time, as the machine has only recently been invented and the record of its performance has not become generally known.

Rice and barley coal from shaker 38 unite and pass through what is called a twin shaker (44). Here they are resized, the new products going to James jigs for treatment, after which the cleaned material passes to its proper pocket. The slate from the two jigs goes to the slate shaker (31).

The slate that has been treated on the slate shaker (31) is sized into coarse and fine material. The fine

goes to the main elevator (53), by which it is discharged to the fine dirty-coal shaker (15). The coarse material goes to a conveyor (63) which takes it to the rock pocket (60).

The condemned-coal conveyor (64) discharges into a reshaker (65), which separates the coal into coarse and fine material. The coarse goes to the main conveyor or elevator, while the fine goes to the mud shaker (35) and receives the same treatment as was accorded the No. 4 buckwheat.

The drive employed in this breaker is the Dodge system, control being centered at one point. Electric energy is used exclusively. The motor room is on

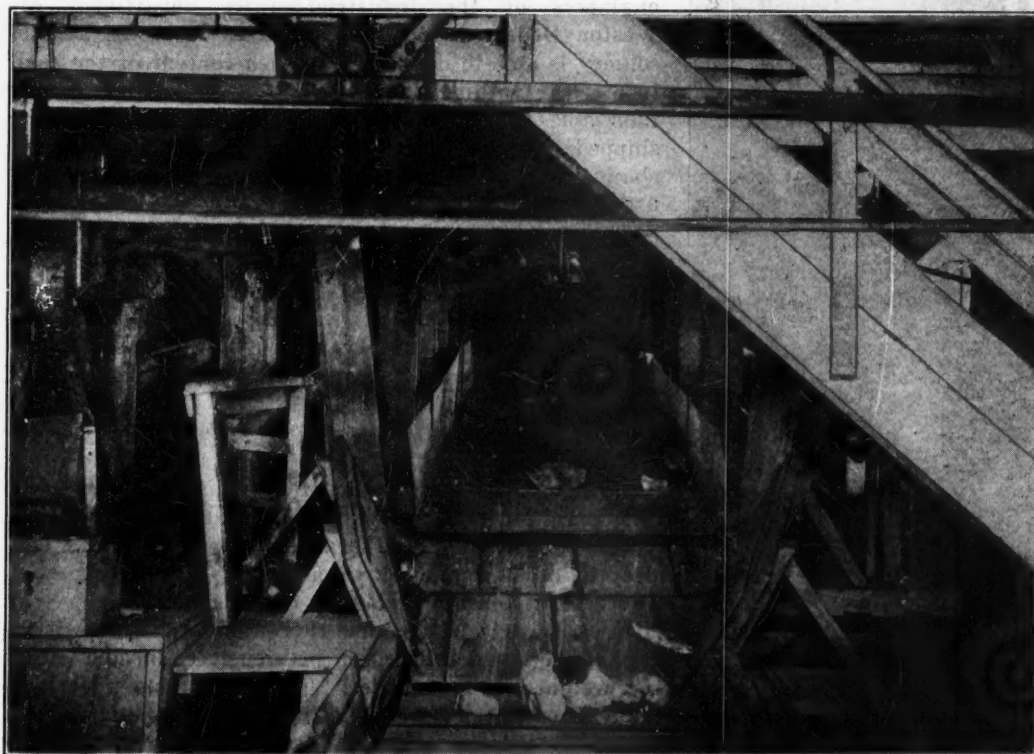


FIG. 12.

Bull Shakers

All the coal goes over one of two bull shakers, of which this is one. Three separations are made—lump, broken and finer coal. Only the lump is seen in the illustration. It is passing on to the picking table, where rock is separated from the coal and the bone also is removed for special treatment.

the ground and toward the rear of the building. It contains four motors.

LOADING CHUTES LOWERED INTO CAR BOTTOMS

The method employed for loading railroad cars is not different from that followed in other breakers, as may be seen in Fig. 16. For the larger sizes of coal arrangements are such that the loading chute may be lowered into the bottom of the car in order to decrease breakage or degradation. In case open railroad cars are not available, a box-car loader may be employed.

This firm, like some other coal companies, has found that tare weights of railroad cars cannot be accepted as correct and that it pays to weigh empty railroad cars. Provision has been made therefore for this weighing. This sometimes makes as much as a ton difference in the final or net weight of the carload.

ASH DETERMINED BY SPECIFIC GRAVITY

Before leaving this subject of preparation mention should be made of the method employed in testing the ash content in the smaller sizes of coal, which is based on its specific gravity. The method followed does away with the chemical analysis that was formerly necessary and it makes it possible to test every carload before it is shipped. The procedure is rapid and it gives results accurate to within one per cent, which is, of course, close enough for all practical purposes.

The extensive machinery for the treatment of steam

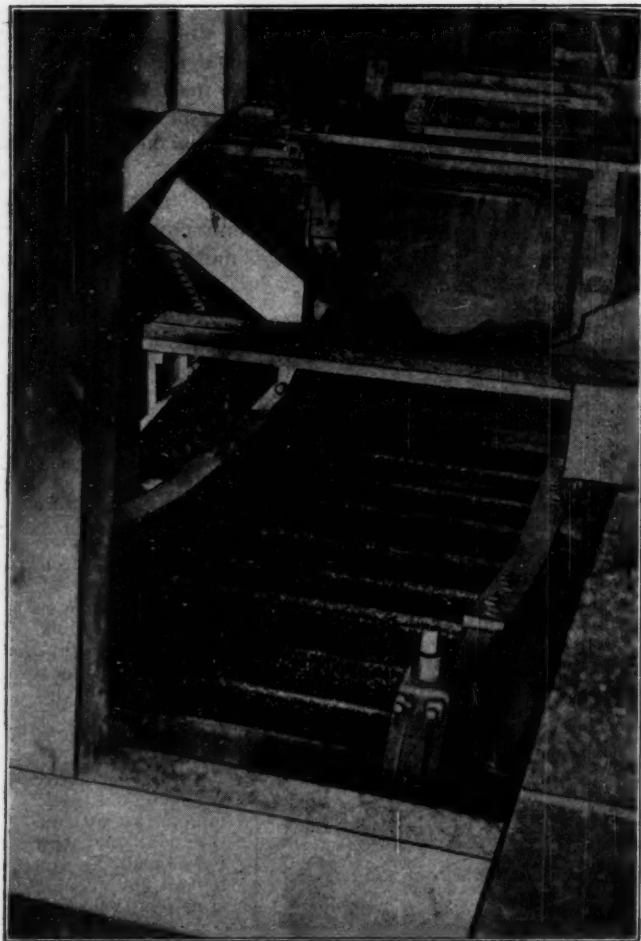


FIG. 13. NO. 1 BUCKWHEAT PASSING OVER RESHAKER

The wet coal from the jig goes over the reshaker, which in this case is not suspended in the ordinary manner but is supported from the bottom, as there is insufficient room to make the suspension from above.

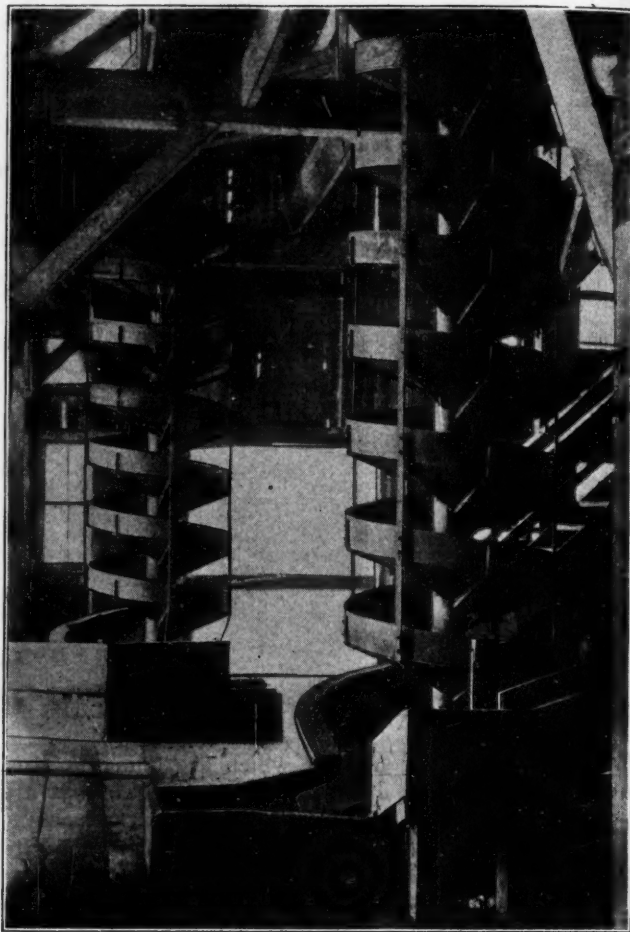


FIG. 14. EGG AND NUT DESCEND BY SPIRAL CHUTES

After passing down the anthracite spirals which separate the clean coal from the tailings, the egg coal passes by these spiral chutes, which serve to break the fall to the egg pocket.

sizes at the Weston colliery was provided to insure a product that would be uniformly low in ash content. By an ingenious and simple method developed by the fuel engineers of the industrial-service department of Weston Dodson & Co., Inc., the coal inspector at the colliery is able to determine the ash content of the coal in any car within fifteen minutes after loading; he is thus able to control the quality of the coal that is shipped. A study of the records of these coal inspectors shows that the results obtained justify the methods used in the preparation of these coals.

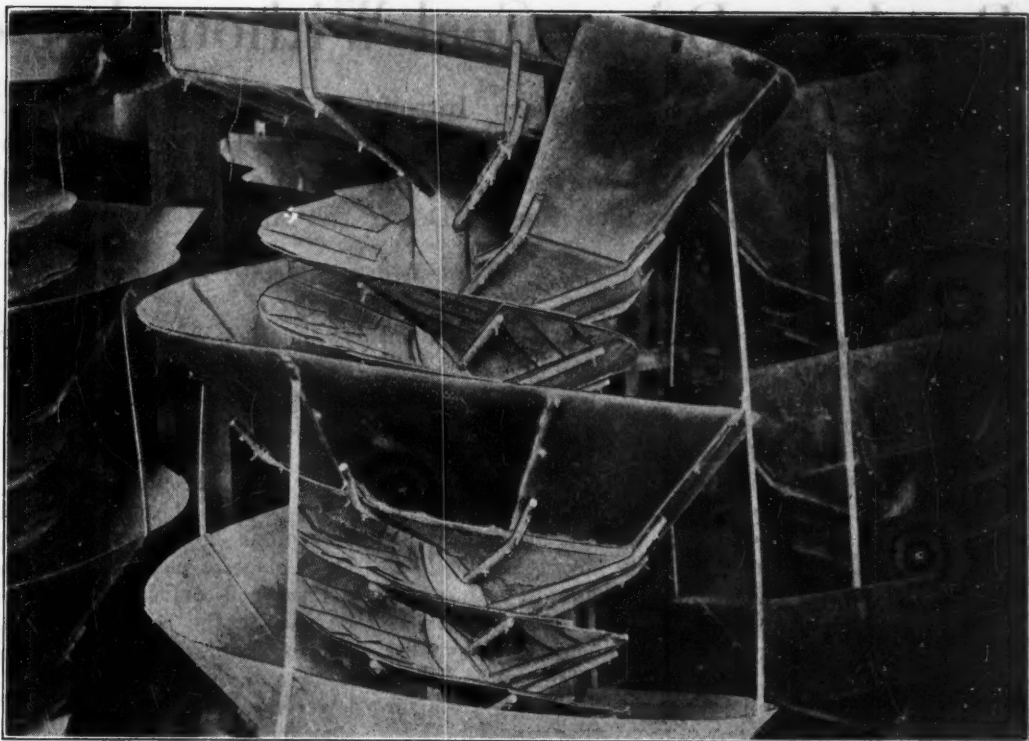
The method for determining the ash content of the smaller sizes of coal depends on a series of laboratory tests of sufficient duration to enable the company to ascertain the relation between the specific gravity of the coal and the laboratory ash content. This relation is not constant but varies with the hardness of the coal and also in some cases with the vein from which the coal is mined.

The object sought is to determine the volume of a known weight of coal, so that by dividing the weight of the coal by the weight of an equal volume of water, the specific gravity of the coal may be obtained. The method of determination is as follows: The inspector procures a measured quantity of buckwheat coal (Nos. 1, 2 or 3), dries the sample thoroughly and places it in a liter flask which has been previously calibrated—that is, weighed full of water. To this sample a certain amount of water is added. The flask is then exhausted of air by suction and by heating for eight minutes.

FIG. 15.

Spiral Pickers

Stove coal from the shakers goes to a bank of spiral pickers for removal of slate. The agile coal takes the outer course, while the slower slate travels close to the shaft of the spiral. Passing from this picker it goes to a picking head for further cleansing, and thence it descends to the stove-coal pocket.



Water is then added to fill the flask. The flask is then weighed, and this weight will be that of the flask calibrated when full of water, less the weight of the water displaced by the coal, plus the weight of the coal. In the formula $A =$ the weight of the flask calibrated, $B =$ the weight of the coal in air, and $C =$ the weight of the flask after the coal and water have been added to it.

The weight of water displaced $= A + B - C$

$$\text{Specific gravity} = \frac{\text{weight of coal used}}{A + B - C} = \frac{B}{A + B - C}$$

This method of determining specific gravity, being entirely gravimetric, eliminates the use of fragile liquid measuring apparatus, such as burettes and pipettes, and places the manipulation within the reach of men usually inspecting coal.

As to accuracy—the entire operation depends on the relation between the ash and the care with which the relation is determined. For the work at this colliery

it was found that on the average the ash can be determined by this method within one per cent of actual ash content. It is being used by the inspectors for condemning coal at Weston colliery, the ash being determined before the car leaves the siding.

GREAT BRITAIN IS PROPOSING to save three to four million tons of coal per year for export and other purposes by using the tidal power of the Severn Estuary, which enters the Irish Sea just south of Wales. The Civil Engineering Department of the Ministry of Transport has worked out the scheme, which is expected to provide over half a million horsepower during a 10-hr. day with a peak load of over a million horsepower. The improvement will provide also for the saving of a detour between Newport and Bristol of about fifty miles and for the quadrupling of the Great Western Ry. line when required. A locking basin for shipping purposes on the Upper Severn also will be provided.

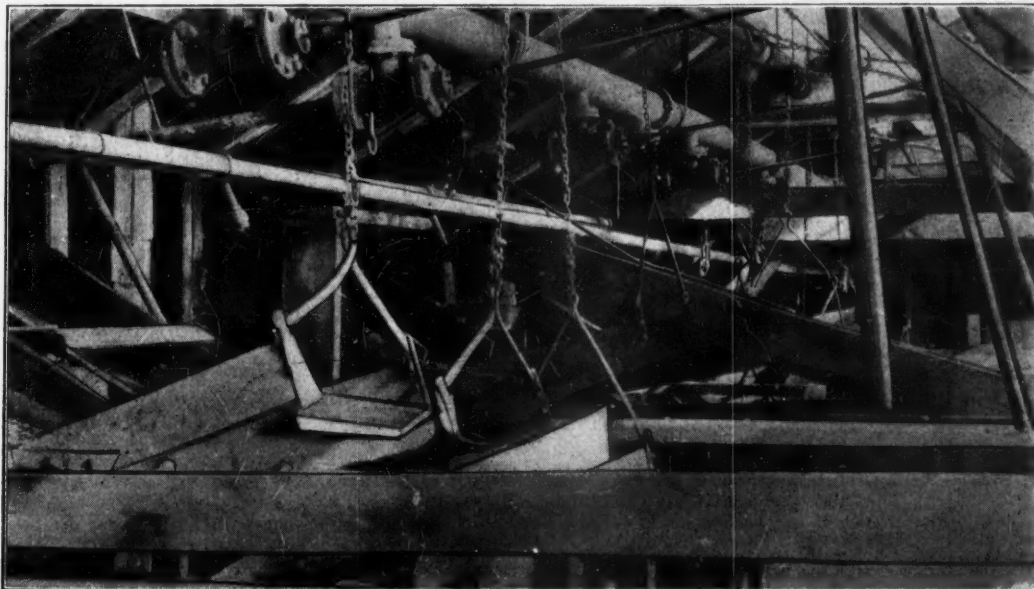


FIG. 16.

Loading Chutes

What is the advantage in careful sizing in the breaker if care is not taken when loading the coal into railroad cars? This plant has chutes to carry the coal with all due care from the pockets down into the car that is to receive it.

Breaking Down Coal Without Use of Powder

A Process Has Been Introduced by Which the Coal Face Is Slotted Near the Roof—Nests of Hydraulic Pistons Are Placed in the Slots and a Water Pressure of 10,000 to 15,000 Lb. Per Square Inch Forces Down the Already Undermined Coal

BY D. VANCE SICKMAN
Denver, Col.

COAL extraction consists of three operations, all of which in the future will be done by machinery: First, undercutting; second, breaking down of the coal, and third, loading. It is easy to see that the use of the pick and shovel will soon become a lost art, and the use of powder will doubtless follow. All three elements of a purely mechanical process of extraction are now in general use except breaking-down appliances. In these not a single advance which has stood the test of time has been made in a hundred years. We still use powder. However, after more than fourteen years of experimentation and development mechanical appliances have been created, which, it is believed, will satisfactorily break down the coal after it has been undercut.

Briefly stated, the principle employed is a duplication of a natural process found in every mine, in that the coal is broken down by developing and applying what might be termed an "artificial squeeze." Everyone has witnessed the effect of roof pressure on a pillar or a stump and has observed that the enormous stress imposed by the slowly settling roof has completely broken and shattered the mass of coal along its natural cleavages or slips. This same effect is obtained by the use of the breaking-down appliances, with the added advantage that the coal is first undercut and the forces being applied in a scientific and practical manner, produce certain definite results.

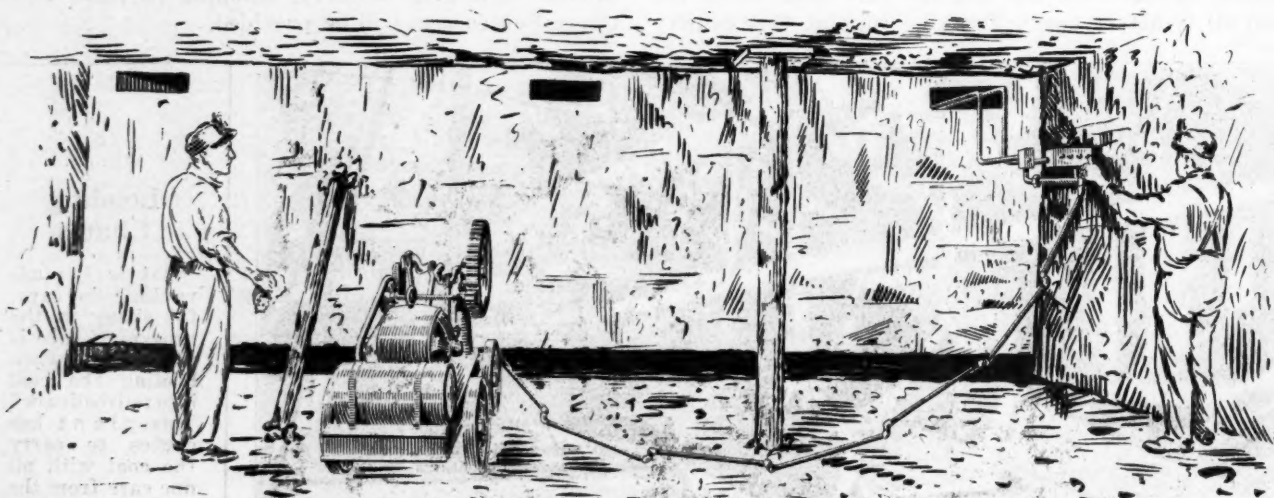
Rectangular incisions are cut in the body of the coal, one near each rib, and sometimes one in the center of the room. These are made parallel with and as near the roof as possible, those near the rib being cut

parallel to it and close to the corner of the room. Where the coal has the usual cleavage planes and slips, the center incision is not necessary, as the coal in that case will break down readily from rib to rib. The machine used for cutting these incisions, or slots, is self-contained and self-propelled.

It consists of a traveling bed plate provided with a caterpillar of the chain-track type, which can be driven from place to place in the mine in the same manner as a tractor is driven on a farm. When desired, it can be run on the rails. The slots are made by a cutter bar of standard design mounted on this traveling bed plate and arranged so that it can be easily raised or lowered, adjusted in position for cutting the slots, and then locked in place.

Sumping is the only work required of this bar—that is, it is simply inserted and withdrawn, cutting the incision in less than 3 min. after the machine is locked in position. The slots are cut to approximately the same depth as the undercut. The standard height of kerf is 4½ in., and by simply changing the width of the cutter bar its width is varied to suit conditions. On the standard machine, cutter bars 18, 24 or 32 in. wide can be used.

This slotting machine is simply the combination of two old and highly perfected devices—the chain-track type of tractor, and the undercutting machine, simplified and modified, for cutting an incision near the roof instead of underneath the coal. Under normal conditions of operation in a 6-ft. bed three men will cut in eight hours on the average the required number of slots for breaking down 250 to 300 tons of coal.



COAL IS UNDERCUT, SLOTS ARE CUT NEAR ROOF BY MACHINE, AFTER WHICH COAL IS FORCED DOWN BY WATER PRESSURE

By this method the coal is not shattered but broken off in large pieces such as will produce sizes well suited for the domestic-fuel market. The water is taken through a pipe line made up of several short joints. This gives a flexible pipe and one fully capable of sustaining the 10,000 to 15,000 lb. pressure per sq.in. under which the pressure bars operate.



CROSS SECTION OF COAL AT FACE WITH SIDE VIEW OF HYDRAULIC PUMP

The cross section is taken through one of the slots and shows the expanding bars in place. Ten gallons will mine 1,000 to 5,000 tons of coal. At the rear of the wagon is a tank which carries that quantity of water. The pressure can be arranged so as to bear more on the front or rear of the coal and so as to afford pressure at the front or back first, as may be desired. One bar is used for shearing the coal off the back wall of support and the other shears the coal off the rib wall.

Into these rectangular incisions is inserted, in succession, a rectangular hydraulic expanding bar made in two sections, each section containing pistons which may be forced outward by water pressure. The bar is rectangular in cross-section, being $4\frac{1}{2}$ in. in depth by $5\frac{1}{2}$ in. wide, the length depending on the number of pistons used. The shorter section of the bar, containing from three to six pistons, depending on the size employed, is inserted first.

This section is pushed to the extreme inner end of the incision and placed parallel to the back wall of support, immediately above the termination of the undercut. The long section of the bar, containing from five to eight pistons, is then inserted and placed at right angles to the first section and parallel to the rib, directly above the extreme side of the undercut, at the side of the room.

Water for ejecting the pistons is conveyed to the bar from a high-pressure hydraulic pump through folding steel tubing, each section of which is 22 in. long. The sections are joined together by means of a specially designed flexible universal joint. This tubing may be folded up like a clothes rack. Connection from the high-pressure pump to the bar can be made of any length, from a few inches up to 24 ft.

WITHSTANDS FIFTEEN TONS TO SQUARE INCH

This folding steel tubing is practically indestructible and solves one of the big problems in this process of mining, as it permits of water being conveyed at extreme pressure from the pump to the bar. A 24-ft. length of this tubing weighs approximately 42 lb. and will withstand a water pressure of 30,000 lb. per square inch. The normal pressure employed is 10,000 lb. per square inch.

The entire equipment, however, is designed for using water at 15,000 lb. per square inch, if such a pressure is required. All parts have an ample factor of safety. The pump is of standard design, suitable for delivering a constant volume of water, and the bars are of proper size for developing the necessary expansive forces.

The expanding bars are furnished in four sizes. The smallest develops a total expansive force of 1,000,000 lb. and the largest a force of 2,500,000. The pistons have large flat bearing surface to prevent indentation.

The thickness of bed, character of coal and other local conditions determine the size of bar to be used. Under normal conditions the bar developing 1,500,000 lb. of expansive force unflinching will break down coal 9 to 10 ft. in thickness.

CAN CONTROL PRESSURE ON COAL AT WILL

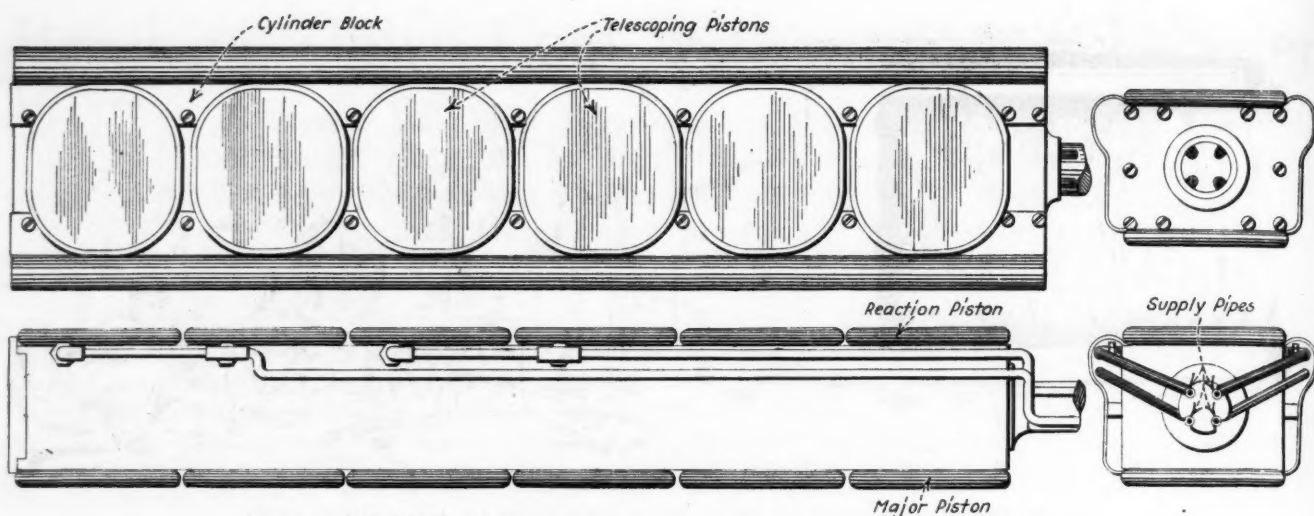
The ejection of each piston, or set of pistons, in the two sections of the bar is controlled by means of external valves, so that certain pistons or sets can be retarded relative to the others, or ejected progressively, thus at will producing a combination of fracturing forces suited to local conditions. These can be made to break and shatter the mass of coal to the extent desired. The expanding bars are comparatively light in weight, the longest section of the smallest bar weighing only 145 lb., while the longest section of the largest bar weighs 192 lb. As each section is placed in the slot separately these weights are easily handled.

To develop such enormous forces in bars of these weights necessitates special construction of the pistons and piston chambers. Each piston chamber contains, in reality, two telescoping pistons traveling in opposite directions, one being ejected upward against the roof and the other downward against the coal. The effect of this construction is to neutralize internal reactions tending to distort the bar—in fact, the bar itself is subjected to a maximum internal reaction equal to only 18 per cent of the total expansive force exerted. The bar, all parts of which are made of chrome vanadium steel, has sufficient rigidity to withstand easily this reaction without distortion. The total expansion of the bar is more than twice as great as is necessary to insure the coal being broken down and toppled over.

PISTON TRAVELS ONLY REQUIRED DISTANCE

Each piston chamber in the bar is provided with an internal automatic cut-off valve actuated by the movement of the piston at the instant it has made its proper normal outward travel. The cutting off of the water supply to any particular piston chamber does not affect in any way the pressure exerted by any other piston.

Powerful springs also are provided, which as soon as the water pressure is removed, quickly force the pistons



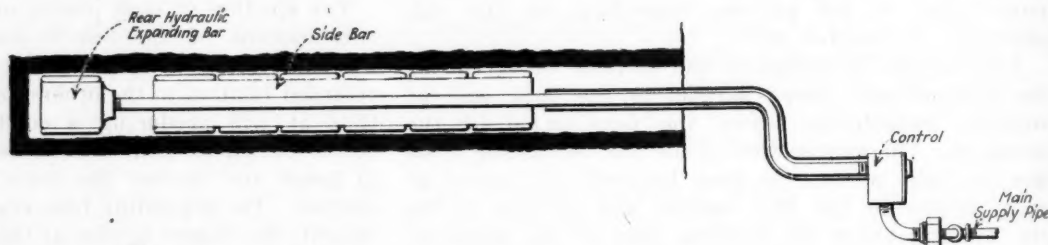
SIDE BAR WITH SIX MAJOR AND SIX REACTION PISTONS
Note the pipes which distribute the pressure to the pistons. A bar of this size exerts a pressure of 750 tons.

back into their chambers, so that the bar automatically collapses, and can be readily withdrawn from the fallen coal. These springs also hold the pistons firmly within their chambers with a force of approximately 104 lb. when in their collapsed position.

Numerous other details of construction and operating characteristics make this bar foolproof yet simple and powerful. This bar utilizes water pressures for larger than those created in any former appliance designed for this purpose. All the breaking-down equipment, consisting of the high-pressure hydraulic pump, the folding steel tubing, the hydraulic bar and all accessories, is mounted on a truck to facilitate rapid conveyance about the mine. This permits the breaking-down process to follow up and co-ordinate with the work of the slotting machine.

Water for expanding the bar is carried in a 10-gal. tank and after each expansion is forced back and used over again. The only loss is the drippings. Ten gal-

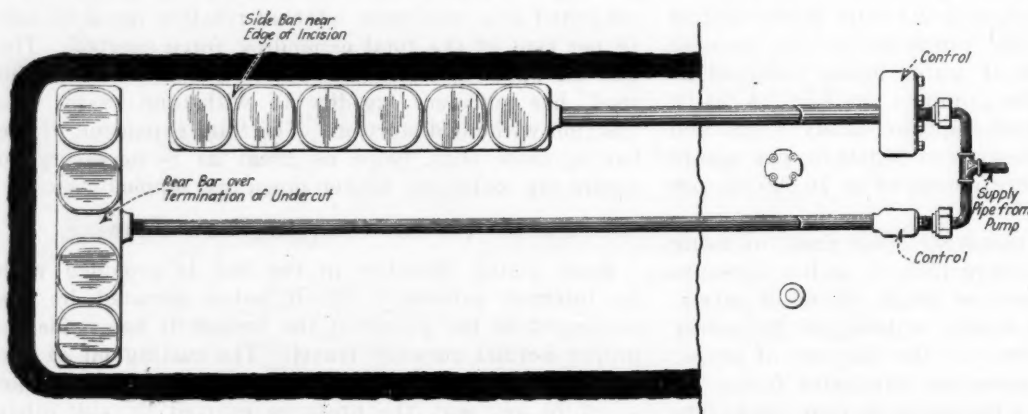
lons of water will mine 1,000 to 5,000 tons of coal. As the enormous forces utilized are slowly applied, those exerted by the short section of the bar, lying parallel to the rear wall of support, shear the body of coal off squarely at the termination of the undercut, while those exerted by the long section of the bar shear it squarely at the rib. At the same time these



VERTICAL CROSS-SECTION OF SLOT, SHOWING EXPANDING BARS WITH CONTROL BOX
The projections at the top and bottom of the side bar are the pistons which, traveling in opposite directions, bring pressure on the roof and on the coal below.

forces follow the general law of forces applied to a non-homogeneous mass, as they are shunted off along the paths of least resistance throughout the coal, and along the natural cleavage planes and slips—dissipating themselves throughout the entire body of coal, so that when it finally falls it is broken into large lumps which are readily handled. By the external valves which control

the pistons, the workman can produce definite shearing stresses along and parallel to the walls of support and also cause the body of coal to be broken up and shattered to almost any degree desired. The result is analogous to that of the squeeze, but with the advantages that the application of force may be scientifically controlled. The most important require-



HORIZONTAL CROSS SECTION OF SLOT
Shows how the rear and side bars are disposed. Cross sections of the water-supply pipes are shown below the pipes they represent. Note that the upper pipes are four in number and clustered around a central core. The rear bar is fitted with a single pipe.

ment of a successful mechanical appliance for breaking down coal is that it shears the material off squarely at the back of the undercut and also along the ribs, thus maintaining a uniform width of rooms and entries. Heretofore no form or type of mechanical appliance has ever developed adequate force to perform this function.

ADVANTAGES OF ELIMINATING POWDER ARE MANY

The advantages resulting from the elimination of the use of explosives in coal mining is a subject on which volumes could be written. It effects economies in production and operation that are astounding. The possibility of its ever being accomplished has, in the past, been so remote that few engineers have seriously considered the changes it would effect in the coal industry.

The saving in life and property, the prevention of accidents in general and other humane and altruistic features are apparent. The roof fall is the greatest danger encountered in coal mining. Its toll is greater than that of all other accidents combined. Eliminate the shattering effect of explosives upon the roof strata and the accidents will be greatly reduced. Also remove the powder smoke and fumes and the working conditions become more healthful and pleasant.

Economically, the use of powder affects every item of production cost. Less timbering is required. What timber is placed is never blown out. Thus losses in output are avoided and the cost of cleaning up the resulting roof fall is eliminated. A saving in costs is effected through the elimination of shotfirers and other highly paid labor. No expense is incurred for installing and maintaining shotfiring apparatus and equipment. Many other items of cost are reduced and operating advantages obtained.

SMOKE MAKES STEADY WORK IMPOSSIBLE

Great as these savings are, however, the chief operating advantage is that resulting from continuous, uninterrupted extraction. It requires a careful study and analysis of underground operations to grasp even partly what this really means, for it effects economies in the whole art of coal mining.

A brief résumé of its significance is as follows: (1) The output may be maintained constant and uniform for every hour the mine is operated. This will result at some mines in an increase in tonnage of at least 25 to 30 per cent without any advance in overhead costs. (2) Where shooting has to be done when men are out of the mine or as they are about to leave it, it is impossible to produce coal more than eight hours per day. With the hydraulic method of displacing coal it is possible, if found desirable, to work the full twenty-four hours continuously and so decrease the investment in development, the interest and the maintenance charges. In some places where the percentage of recovery is low, the amount of coal extracted from a given developed territory may increase 50 per cent. Rooms can be driven up in less than half the time now required and the concentration of operations for a given output into a comparatively small area will prevent the development of squeezes on both room and chain pillars. A concentrated, continuous process of extraction will save annually more than one-half the coal now lost from this cause.

(4) Concentration of operations also permits of better supervision, prevents accidents, results in greater

output per dollar invested, and by increasing efficiency effects other savings, all of which result in a material lessening of production costs. (5) New territory can be developed with great rapidity. If the new development work is well concentrated and three 8-hr. shifts are employed, entries and narrow places can be driven four times as quickly as under present methods. Many coal companies would be in existence today and paying dividends had this been possible in the past.

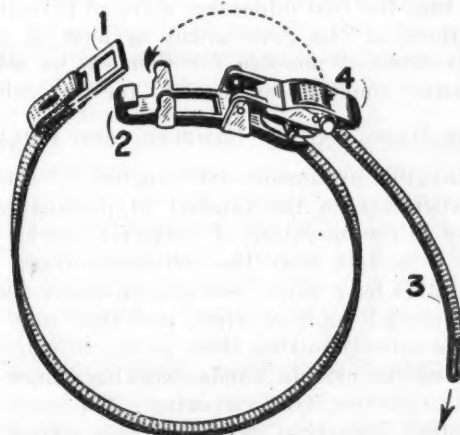
(6) A reduction equaling at least 50 per cent is made in the amount of slack coal produced. In the West and Middle West slack is more or less of a byproduct, often sold for much less than the cost of production, and at certain seasons of the year "dumped." As the average proportion of slack coal, using powder, amounts to 40 per cent of the total output, the lump, nut and other prepared sizes must carry the burden of costs and pay profits, if any. A reduction in the amount of slack, therefore, materially increases the mine-run value. This mechanical process of extraction reduces the amount of slack to less than 20 per cent of the output, thus effecting an increase of a dollar a ton in the total value of the coal, at current prices, in all those Western States which produce coal primarily for domestic consumption.

A Tourniquet Made Like a Trouser Belt

A SIMPLE device for bringing pressure upon a severed artery and stopping bleeding is illustrated in this article. It can be used in cases of crushing or bleeding of the extremities and can be applied over the bare skin without any damage to the tissues. It also can be placed over the heaviest clothing and it will still do its work with efficiency.

The ordinary tourniquet made from a triangular bandage with the aid of a piece of coal or a bolt is apt to be quite painful and it cannot be put on by the man who is injured but must be placed in position by someone else. The tourniquet shown is comparatively painless even after lengthy application, can be put on by the patient, who also may slacken or release it, if necessary. By the distributed pressure around the limb the part gradually becomes numb and relieves the pain of the patient rather than increases it.

It is not well to keep the pressure of any tourniquet on a limb longer than necessary, as gangrene may set in. As this tourniquet is so readily released and



TOURNIQUET WHICH CAN BE USED AS A BELT

This instrument gives a pressure that can be regulated at will and can be used to stop the blood in a finger, or a limb or to bind in place a double splint.

replaced, there is no disposition to keep it in place for an excessively long time and there is no danger that the patient will lose an excessive amount of blood before the tourniquet, when once released, can be replaced.

The device also can be used in case of fractures to maintain the position of emergency splints. Placed around the injured limb over the splints and above and below the seat of fracture it is possible to obtain the exact amount of pressure to hold the tissues firmly and yet not press the splints sufficiently to injure the limb.

As the tourniquet is in the shape of a trouser strap it can be used as a belt by the first-aid man, so that it will always be at hand ready for application. This device can be used around a finger or around the waist, as it has the widest of latitude. It is known as the Robinson tourniquet, and under that name two of these first-aid instruments are required by the Massachusetts law to be placed in the first-aid kit on each railroad train. The device is manufactured by the American Standard Tourniquet Co., of 59 Fourth Ave., New York.

Will Germany Nationalize Coal Mines or Merely Establish New Trusts?

Trend Away from Promised State on Socialism—State Mines and Industrial Plants Unprofitable—Private Mines Make Unheard-of Profits—Rathenau Urges Thirty Years of Cost Plus—Lederer Would Exchange Bonds for Stock with Government Operation—Stinnes Advocates Vertical Trust from Mine to Market

BY H. O. HERZOG

Berlin, Germany

OF THE various economic problems which occupy the public mind in Germany the nationalization of coal resources is the most prominent. It has been one of the chief demands of the working classes since the establishment of the republic, and although strong forces have been and are still at work to keep the matter quiet and to prevent governmental action being taken on it and although it is commonly believed that even the socialistic leaders are acting half-heartedly and against their better judgment, the radical workers will not let the demand die.

The government as a condition in the settlement of the various disputes arising out of the monarchist coup last March pledged its word to take the nationalization of coal resources in hand and has instituted a committee to study the subject in all its aspects. This committee has been at work for considerable time without arriving at a feasible basis for legislation. The evidence is not favorable to nationalization. Opponents of government ownership are able to bring forward strong arguments against it. It is maintained, for instance, that the coal mines are safer in private hands than in those of the government as long as political conditions make it possible for them to be seized by former enemy countries as security for war debts.

STATE MINES CANNOT COMPETE WITH PRIVATE

More tangible arguments are supplied by the unfortunate experience in the conduct of nationalized coal mines and in the operation of industrial works in general. It is a fact that the collieries owned by the Prussian State have never been conspicuously successful from a financial point of view, and they now need a heavy state subsidy to keep them going, although neighboring mines in private hands, working under exactly the same conditions, are prospering. The same may be said of other industrial establishments owned by the state, formerly devoted to the manufacture of war material and now turned into peaceful channels. The

"Reichswerke," or State Works, at Spandau, which comprise plants of a magnitude surpassing even that of the Krupp plants, also are in a bad way. It has often been proposed to sell them to private owners, a procedure which has recently been adopted by the Austrian government with regard to its state plants. Business men of the country take it for granted that the superiority of privately owned works with regard to efficiency and economy has been proved beyond doubt.

If, on the other hand, the claim of the workmen for nationalization can find support among responsible politicians and business men, it is due to the fact that it is believed to be necessary to make a concession to the socialistic doctrines prevalent among the working classes and especially to the fact that the coal resources are now controlled by a few men only, who have accumulated enormous wealth and assumed an overwhelming influence in the business life of Germany.

UNHEARD-OF PROFIT IN GERMAN COAL INDUSTRY

The reports of the coal-mining companies, although full of complaints with regard to expenses and working conditions, show profits hitherto unheard of in the history of German industry. It has not been a rare occurrence for plants to make a larger net profit during the last business year than their whole capital amounted to, a state of affairs which the companies have for the most part made less conspicuous during the year by watering their stock.

It was, perhaps, the legitimate right of the coal magnates to accumulate huge profits, but it was undoubtedly unwise to demonstrate this accumulation of wealth and to exhibit the power behind it so openly as has been done. It added fuel to the political strife and created ill-will among the people, most of whom are not blessed by good fortune.

It was, therefore, not a matter for surprise that the clamor for nationalization commenced anew and that the government was urged with all vigor to proceed

in the matter. The government, bound by the promise given last March and warned by the growing unrest of the workers, had to make a step to show that it meant business.

The committee which is commissioned to deliberate in the matter has been urged to proceed and to make its deliberations public. This committee is composed of members of the Reichswirtschaftsrat, or National Economic Council, and the Reichskohlenrat, or National Coal Council. It consists of members of the employers and of the employed.

WANTS PRIVATE OPERATION AT COST PLUS

The nationalization of the coal mines has taken concrete shape in several proposals which may be classified in two groups. In the first group stands the official proposal as compiled by Professor Lederer, national economist of the University of Heidelberg, and as an alternative that of Dr. Rathenau, general manager of the Actien Electricitäts Gesellschaft. These two proposals, although different in details, conform in the main issue, that is, that the total coal production shall at once be taken over by the state.

They provide for the establishment of a government board for the distribution of the coal, whereas, according to the official proposal, the mines should be taken over by the state and the owners divested of all proprietorship in return for bonds corresponding to the value of the mines. Dr. Rathenau proposes to leave the mines in the hands of the present owners for thirty years. The mine owners would, however, be compelled to give up the total production of their mines at cost price plus an adequate profit, providing for a premium on increased production as a stimulus in this direction. According to the government proposal the state would have to operate the mines, whereas Dr. Rathenau gives preference to private management.

Most prominent in the second group is the proposal of Stinnes, the German coal king and probably the wealthiest and most astute business man of present-day Germany, which group stands in entire opposition to the other two proposals. It develops quite new ideas. Stinnes is of the opinion that the operation of the mines by the state would mean the gradual decline and ultimate ruin of German coal production.

LARGE SUMS MUST BE SPENT TO DEVELOP MINES

The equipment of the mines is run down and in many cases not up to modern requirements. The time is not far, he maintains, when new shafts will have to be sunk, enormous investments being needed for their upkeep, not to speak of the large capital needed to increase their capacity. Experience has shown, he says, that operation by the state, with its apparently unavoidable red-tape administration, is inevitably unprogressive. He proclaims that a state administration will be unable to cope with the task and at best will be less competent than private capital.

Stinnes recognizes the necessity of giving the workmen a share of the profit. He wants to open to capable men a wider career than they now have. They should be singled out, he asserts, and be allowed to climb the ladder of advancement. This opportunity would create that spirit of ambition among workmen which is so completely lacking where plants are nationalized. In place of this proposal he would suggest that private enterprise be retained, and he asserts that the remedy for present conditions lies not in nationalization but in

co-operation. His conclusions in this matter are, he says, based upon the requirements of practical business life.

A CHAIN FROM MINE TO FINISHED PRODUCT

Stinnes starts with the idea that co-operative combines should be formed embracing large coal consumers like gas works, electric plants, waterworks, with a corresponding number of coal mines sufficient for their supply. Each of these groups should have a board which would regulate prices and distribution and in these the consumers should have the majority. He further suggests that the consumers should gradually assume control of the coal mines by exchanging the coal-mine stock for their own.

Such co-operative combines properly grouped by geographic districts should further include small individual consumers, industrial plants and the like. He suggests that larger manufacturing plants should form similar combines among themselves with a number of coal mines sufficient for their requirements, whereas the large plants should merge with coal mines independently of the rest.

ALLIANCE TO AVERT WASTAGE OF EFFORT

No mention is made of an intention to develop even further this process of welding together producers and consumers but no doubt it has been kept in mind. The idea prevails that the enormous energy now wasted by all manufacturers to procure fuel and raw material can be saved by linking together the chain of production from the producer of coal to the manufacturer of the finished product. The combines which Stinnes seems to have in his mind would, therefore, comprise coal mines, iron and steel works, with a corresponding number of manufacturers of finished articles. It is said that such combines would have all the financial and technical power to cope with the requirements of the present time and the future and that every member would benefit by the activity of the others.

WILL CONSUMER BE SWALLOWER OR SWALLOWED?

There is no doubt that the idea of Stinnes has many winning features, but on the other hand it is idle to deny that there are great dangers lurking behind. While apparently Stinnes' proposal would give the consumers control of the coal production, it is feared in many quarters that events would march in the opposite direction—that is, that the coal producers, being in the stronger position, would assume control of the finishing stages. It can readily be believed that astute business men like Stinnes, whose strength is largely based on his coal-mine possessions, would not be averse to assisting such a development.

Meanwhile his ideas are strongly advocated among the large industrial leaders, and moreover quite a number of them are acting upon them already without awaiting the conclusion of the nationalization problem. What Stinnes is evidently striving at is the formation of trusts between coal producers and manufacturers of finished articles. During the last month quite a number of such trusts have been formed.

The largest of them, called the Rhein-Elbe Union, is Stinnes' own work. It comprises firms of such magnitude as the Gelsenkirchener Bergwerksgesellschaft, the Deutsch-Luxemburgische Bergwerksgesellschaft and the well-known steel works of Gebrüder Bohler, to which has lately been added the Mühlheimer Berg-



Problems of Operating Men

Edited by
James T. Beard



Breathing of a Sealed Abandoned Section of a Mine

Observed Change of Breathing in an Abandoned Section of a Mine That Had Been Sealed Off for a Long Period, Caused Probably by a Fall of Roof Within the Section That Released a Large Quantity of Gas Contained in the Overlying Strata

FOLLOWING the suggestion made by the editor when replying to the inquiry I sent to *Coal Age* a short time since and which appeared in the issue, Dec. 30, p. 1336, I am now sending the additional information asked.

In the first place, I did not mean that one end of the sealed panel was still open. As shown in the accompanying figure, the sealed section to which I referred consists of about twenty rooms driven off from a pair of headings known as the third and fourth north off the main west entries.

The conditions prevailing in this section were very bad. The roof was falling continually and the coal became so low that it was finally decided to abandon the headings, which were closed and sealed some two years ago. As indicated in the figure, there were two seals, a solid 4-ft., concrete stopping being constructed in the mouth of each heading.

TWO-INCH PIPE AND VALVE BUILT IN STOPPING TO TEST THE AIR

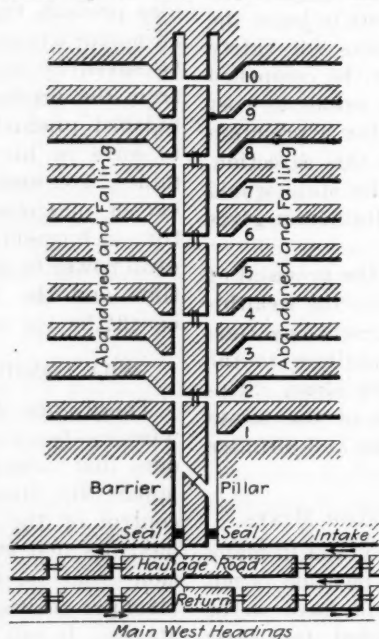
Built into one of these seals is a 2-in. pipe having a 2-in. valve, which the fireboss is supposed to open each morning when making his examination of the mine, and observe whether the air is drawing in or blowing out of the section. The mine is ventilated on the blowing system, and an air current of 75,000 cu.ft. per min. is passing the seals on the main intake of the mine.

Recently, I have been much interested in observing the change that took place suddenly in the breathing of this section. The tests showed that, for nine consecutive days, air was being drawn into the section. Then, for five consecutive days following this, the tests showed air or gas was being blown out from the place.

My previous letter failed to state that this change in breathing could not be ascribed to any change in the circulation in the mine, which remained constant throughout the period of the tests. Also, there are no breaks extending to the surface that would give vent to the atmosphere within the sealed portion. In this mine, the floor

and top are good and there is 400 ft. of cover overlying the seam.

What may be of importance, however, is the fact that the coal is overlaid with about 5 ft. of black slate above which is a layer, about 20 in. thick, of what we call in this field a "steel band." There is practically no gas in the floor or the coal; but gas comes from the roof when the slate breaks up to this steel band. It is



PLAN OF SEALED SECTION SHOWING POSITION OF THE SEALS

only then that we are at all troubled with gas. The coal will average 7 ft. in height throughout the most of the mine. I am still hoping for some further explanation of the cause of the change observed in the breathing of the sealed section.

Bruceville, Ind.

[The statement of this correspondent that gas is set free when the slate breaks to the so-called "steel band" points to the probable cause for the change observed in the breathing of the section from "drawing in" to "blowing out," the last five days of the test.

FIREBOSS.

The mine being ventilated on the blowing system, the natural breathing of a sealed section would be inward, owing to the mine pressure being above that of the atmosphere. Even under a 400-ft. cover there is a continuous drainage of gas from the overlying strata to the surface.

It is quite possible, indeed probable, that a heavy fall of roof occurred in the abandoned section of this mine, about at the end of the first nine days of the test. Such a fall of roof would release a large volume of gas within the area and cause the outflow of gas and air from the sealed section into the mine, owing to the pressure of the gas in the strata being somewhat above the mine pressure.

This is the most plausible reason we can give for the observed change in the breathing of the section. On conditions again approaching normal, it is probable that the breathing of the section will again become inward, which is the natural condition in the blowing system of ventilation.—EDITOR.]

ANOTHER LETTER

The sealing of abandoned workings is here described as forming a "gas magazine" that would endanger the mine and the men employed therein. Ventilating such abandoned workings by a separate air split is strongly advocated as a measure of safety.

REFERRING to the interesting inquiry and reply, regarding the breathing of a sealed portion of a mine, *Coal Age*, Dec. 30, p. 1336, permit me to offer a few comments that may be helpful.

The suggestion of the editor that the system of ventilation employed, whether exhausting or blowing, is of importance is true and agrees with my own observation and experience in such cases. I have found, also, that the movement of trips of cars in the entries and of cages in the shaft affect the flow of gas from a sealed section of a mine and are worthy of consideration.

However, there is no need for this fireboss to worry over the conditions he has described. No real danger can result from the outward breathing of such a section, provided a fair current of air is kept in circulation passing the seals and conducted at once into the main return airway.

In my own practice I never care to close up or seal off an abandoned area. I believe it provides a gas magazine that must always be a menace to the

safety of the mine. A far better plan is to ventilate such abandoned workings by a separate air split, which should not be permitted to pass through any live workings on its way out.

Observation proves that gas continues to drain from the strata in a mine in constantly decreasing quantity, as time passes. I know of many old workings where no gas can be found at present, and yet five years ago the same places generated so much gas that the mine would fill in less than 24 hours if it became necessary to shut down the fan for repairs. The great feeders that formerly supplied the gas have since become exhausted.

GAS ACCUMULATES RAPIDLY

In one case, during the development of a mine, a circulation of 500,000 cu.ft. per min. was required to keep the workings safe. It was found that, during a temporary stoppage of the ventilating fan, gas accumulated so rapidly that a man with a safety lamp could not keep ahead of the gas at an ordinary walk.

An experience of 24 years in such mines confirms my belief that the safest plan to adopt is to ventilate all abandoned areas in such a manner as to prevent the accumulation of any dangerous quantity of gas within them. If sealed off, such areas are liable to develop a heavy roof fall that would drive the gas out into the live workings.

Let it not be understood that I am opposing the sealing off of any section of a mine where such action is necessary by reason of fire or other cause. I am only speaking against confining a dangerous enemy, such as gas, in a prison from which there is every opportunity for it to escape and do serious damage.

In closing, let me say that an excellent plan is to sink boreholes from the surface, by which to drain the gas from such areas and prevent its accumulation in the mine. However, where boreholes for that purpose pass through overlying seams it is necessary that their location be carefully designated on the mine map, and the coal around each hole reserved so as to prevent the escape of gas into the upper workings from the mine below. Many serious accidents and explosions have occurred from this cause.

Plains, Pa.

RICHARD BOWEN.

Working Contorted Coal in the State of Washington

Roadways driven in the strata underlying the coal and rock chutes driven up to reach the seam often prove an advantage when the measures are badly folded.

MY attention was drawn recently to the inquiry of P. C. Craven, *Coal Age*, Nov. 4, p. 954, in which he presents a sketch showing the contorted condition of a coal bed within his district, and asks for suggestions to economically mine a bed of that nature.

In western Washington the coal beds are greatly distorted and dip at angles

varying from three to ninety degrees and, in some cases, the beds are overturned. As a result, various systems of mining have been put into effect in this state and, while some of them have been successful, others have not.

Mr. Craven speaks of a heavy roof pressure, making the top hard to handle. Judging from this, it would be rather difficult to maintain haulage roads within the seam itself and it might be necessary to drive these roadways in the strata underlying the coal. This may seem an expensive method of developing a mine, but about a year ago I was called on to suggest ways and means of working a bed that had excessive roof and floor pressures, so that the slopes and gangways were heaving and squeezing badly and had to be retimbered frequently.

A room-and-pillar system had been in use in the mine but, owing to the poor results, this was changed to a longwall system of working which has been running now for about four months with excellent results. Any new gangways required will be driven in the rock at a distance of about ten feet below the coal. Rock chutes will be used to bring the coal from the longwall face to the rock gangway. This bed dips at angles varying from twenty-five to forty degrees.

STEEPLY-PITCHING CONTORTED COAL IN WASHINGTON

In this state, in the areas where the beds are dipping from seventy-five to ninety degrees, a chute-and-pillar system has been used to advantage. Chutes 5 x 5 ft. in size are driven up on the full pitch from the gangway, a distance of thirty or forty feet, to the first crosscut. These chutes are driven on forty or fifty-foot centers. Each chute is continued on the full pitch for thirty or forty feet above the first crosscut. In some instances, it is then driven diagonally across the pitch, so that the angle of the chute is approximately forty-five degrees.

At intervals of fifty feet, horizontal crosscuts are driven connecting the chutes. After a series of chutes have been driven to the boundary, which might be a barrier pillar or a surface pillar, the top block of the first chute is withdrawn, sometimes beginning at the top of the block and placing a series of cogs below the chain pillar. At other times, the block is attacked from one of its lower corners.

It is impossible to suggest a hard-and-fast rule for the conditions confronting Mr. Craven. It is more than likely that he will have to subdivide his mine into panels, depending on the condition of the coal and the degree of pitch, and use a system for each subdivision that will meet the requirements. He may find it an advantage in some instances to even drive chutes in the rock to attack a large pocket of coal, provided he finds that a chute driven in the coal squeezes badly and requires too much timber.

GEORGE W. EVANS,

Seattle, Wash. Mining Engineer.

Competency in Shotfiring

The competency of shotfirers is a greater factor in reducing mine accidents than the use of numberless safeguards, in the way of foolproof appliances.

ATTENTION was called not long since, by a mine foreman writing from Leckrone, Pa. (*Coal Age*, Nov. 4, p. 953), who mentioned several points of danger and urged the use of safety appliances in connection with the work of shotfiring in mines. It is my belief, however, that the greatest need in this direction is to secure more competency in the performance of the work. Too often it happens that the shotfirers employed have little or no experience in that line, having been chosen without due regard to the importance of the work.

What is true of shotfirers in this respect is likewise true of a large number of mine foremen and assistant foremen. They are men whose experience is not adequate to the responsibilities they assume. In other words, they are young on the job.

WHAT IS NEEDED

An inexperienced mine foreman is very apt to regard the work of shotfiring as of even less importance than that of an assistant foreman. As the work is done after the men have left the mine, he gives the job to some hunky with a few instructions how to proceed, and if anything happens it is easy to conclude that the hunky did not follow the foreman's orders.

What is needed all along the line is a greater competency of mine officials, from the superintendent down. What can be expected of a foreman placed in charge of a mine when he has not had the nerve to go before an examining board and get his papers? Can it be thought strange that such a one would choose as his assistants, men who know less than himself? It is not uncommon to find an assistant foreman, fireboss or shotfirer, a man who can neither read nor write, to say nothing of his not having gotten his papers certifying to his competency.

NIGHT SCHOOL STARTED BY A STATE MINE INSPECTOR

Realizing the growing need of more competency among mine officials, Richard Maize, district mine inspector, Uniontown, Pa., has started a night school for any in his district who are desirous of improving themselves in the knowledge and practice of coal mining. It would be well if all our mine superintendents would follow his example and get their men together in regular meetings for the discussion of different branches of the work. The result would be a great improvement, and help to systematize the work and reduce the number of accidents.

Speaking of superintendents, I have in mind at present, one such official who, according to his own statement, would rather employ a hunky than an American miner for the work of fire-

bossing or shotfiring in the mine. It is such instances as this that cause friction among the workers and increase the accident list. Many American miners would rather quit any day than work under a hunky.

In closing, I have a word to say to this mine foreman from Leckrone, who cites an instance of a miner coming from the powder magazine, holding ten or twelve caps loose in his hand and striking his head against a low trolley wire, with the result that the caps were exploded and the man injured, perhaps killed.

The incident shows that the mine foreman in charge at the place failed in two respects. First, he should not have permitted a miner to receive caps at a magazine, without they were placed in a box for carrying. Second, the trolley wire on the surface should have been at least six feet above the rail and such an accident would not have happened.

Oliphant Furnace, Pa. FOREMAN.

Natural Advantages Favor American Mining

Natural advantages favoring the mining of coal in America are too obviously responsible for the greater production per man per day, in this country than in Great Britain, to permit of doubt.

WITH the kind permission of *Coal Age* and its readers I want to reply briefly to the letter of V. Frodsham, which appeared in the issue Nov. 4, p. 952. Mr. Frodsham tries to show that superior systems employed in the mining and hauling of coal in this country are the main factors that contribute to the greater output of the American miner.

In doing this, he practically repeats the arguments of G. S. Rice, Apr. 15, p. 766, which started this discussion. In my opinion, the argument of the later writer is no more logically sound than those Mr. Rice first advanced. It appears to me that the natural advantages surrounding American coal operations and favoring a larger output of coal, per capita, are too evident to require any extended explanation.

DEPTH OF HOIST, LENGTH OF HAUL AND THIN COAL IN BRITISH MINES

Is it not true that the average depth from which British coal must be hoisted is 50 per cent greater than that in this country? Is it not equally true that the distances of underground haulage in British mines exceed American haulage by 30 or 40 per cent? Again, is it not a fact that the average thickness of British coal seams is but one-half of that in this country?

No one will say that these are not potent factors in the production of coal at a low cost and in large quantity. The scarcity of mine timber in England, is another item demanding consideration, when seeking to explain the greater output of American miners. My claim is that these natural disadvantages limit the producing power of British miners.

Again, it is foolish to suggest that coal operators in Great Britain are less willing to take risks that would increase their production; or to say that their systems of haulage are inferior to those in this country; or their equipment in the mine is in any respect, inferior to American practice.

In respect to haulage, British practice adopts that form or type that is best adapted to the varying conditions. The systems in use in Great Britain include endless-rope, main-and-tail-rope, engine-plane and combinations of these, as seems best suited to the conditions.

In this connection, allow me to quote from a writer in the March (1917) issue of *Mine and Quarry*, which reads as follows:

The United Kingdom had about the same number of coal mining machines at work in 1914, as were at work in the United States in 1899, when there were 3,093 machines in Britain, as against 3,125 in the

United States. Our seams are thicker and the natural conditions more favorable than in British mining. It is quite possible that the seams we mined in 1899 averaged twice the thickness of those mined in Great Britain in 1914. The figures do not in any way reflect on British colliery management.

Other references, in Mr. Frodsham's letter, to the miners' opposition to the introduction of machines in British mining; the employment of "putters" for pushing the coal from the face to the gangway; and the alleged willingness of American operators to incur greater risk to human life, need no refutation. The first two of these allusions refer solely to early-day mining, and are only to be found in exceptional cases at the present time. Finally, the example set in respect to the safety of mine workers might well be followed in American mining.

T. J. SHENTON.

Prince Rupert, B. C., Can.

Inquiries Of General Interest

Personnel of Anthracite Examining Boards

Does the Anthracite Mine Law Bar Mine Foremen and Assistant Foremen from Service on the Three Examining Boards for the Certification of Mine Inspectors, Mine Foremen, Assistant Foremen and Miners

ALLOW me to bring to the attention of *Coal Age* and its readers a matter that has, for sometime past, been widely discussed, but without arriving at any definite conclusion. Though varying opinions have been expressed, the fact remains that neither mine foremen nor assistant mine foreman have ever been appointed on any of the three examining boards provided for in the Anthracite Mine Law.

Regarding the board for examining candidates for the position of mine inspector, the anthracite law reads:

The said board of examiners shall be composed of three reputable coal miners in actual practice, and two reputable mining engineers, all of whom shall be appointed at the first term of court in each year, to hold their places during the year. (Art. 2, Sec. 4)

Regarding the board to be appointed to examine and pass upon the competency and fitness of candidates for the position of mine foremen and assistant mine foremen, the same law reads:

The said board shall consist of the district inspector of mines, two practical miners and one owner, operator or superintendent of a mine. The said inspector shall act *ex-officio*; and the said engineer and owner, operator or superintendent, shall be appointed in like manner and at the same time as the board of examiners for candidates for mine inspectorship under this act are now appointed. (Art. 8, Sec. 3)

Again, regarding the Miner's Examining Board to be appointed to exam-

ine and determine the qualifications of persons desiring employment as miners in any anthracite mine in the state, the law reads:

There shall be established in each of the eight inspection districts, in the anthracite coal regions, a board . . . to consist of nine miners, who shall be appointed in the same manner as the board to examine mine inspectors are now appointed, from among the most skilful miners actually engaged in said business in their respective districts, and who must have had five years' practical experience in the same. The said persons so appointed shall each serve for a term of two years from the date on which their appointment takes effect. (Act, approved July 15, 1897; Sec. 2)

The law last named gives the miners absolute control over the necessary qualifications of miners, the personnel of the board consisting of "nine miners," only. It is a fundamental principle of law that a man shall be tried by a jury of his own peers, which would seem to be a just provision.

Why then, let me ask, are not mine foremen and assistant mine foremen eligible under the law for appointment on examining boards to determine the competency and fitness of candidates for positions in their own class.

There might be some difference of opinion as to the practicability of mine foremen and assistant foremen being eligible for appointment as members of a board to examine candidates for the position of mine inspector, although

the law provides for the appointment of "three reputable coal miners in actual practice" on that board.

May I ask that this question be answered in *Coal Age* and further discussed by its readers, in the hope that mine foremen and assistant mine foremen may be no longer discarded as not being eligible for appointment on anthracite examining boards.

JAMES A. HENNINGAN.

Pittston, Pa.

This is a live question and one that should call for the expression of opinion by all classes of mine workers, from operators and officials to miners. It is true that, for one reason or another, mine foremen and assistant mine foremen have not received appointments on any of the anthracite examining boards, while holding either of these positions.

In the opinion of the editor, however, there is nothing in the Anthracite Mine Law that can be correctly construed as barring a mine foreman or assistant foreman from appointment and service on any of the three boards mentioned in this inquiry.

This opinion is based on the fact that a mine foreman or an assistant mine foreman is a "miner," in the meaning

of the law, the same as though he was engaged in digging coal at the time when seeking appointment on an examining board.

In defining the meaning of the several terms used in the anthracite law, Article 18 of the law thus defines the intended meaning of the term "miner," as used in the law:

The term "miner" means the person who cuts or blasts coal or rock at the face of a gangway, airway, breast, pillar or other working place; also any person engaged at general work in a mine and qualified to do the work of a miner. (Art. 18)

There can be no question but that a foreman or assistant foreman is "engaged at general work in a mine" when acting in his official capacity. Also, one of the qualifications required of candidates for either of these positions is, (Art. 8, Sec. 2) that he shall have had "at least five years' practical experience as a miner."

It will be interesting to watch the opinions expressed in *Coal Age*, by every class of its readers, who will doubtless agree that the failure to appoint foremen and assistant foremen on examining boards is an unwarrantable slight, though not intended as such, but attributable to a varying interpretation of the meaning of the term "miner" in the law.

at the shaft bottom or as near as possible to the mine entrance. A reading taken on the fan drift shows the difference between the atmospheric pressure and that within the drift.

This difference of pressure is the unit of pressure producing the circulation and is expressed in pounds per square foot. Multiplying this unit pressure by the sectional area of the fan drift gives the total resistance of the mine and the two shafts expressed in pounds. When the reading is taken at the shaft bottom or close to the mine entrance and the unit pressure multiplied by the sectional area of the airway, the result is the mine resistance only.

(b) As the workings in a mine are extended and the rubbing surface increased, both the mine resistance and the water-gage reading corresponding thereto are increased, provided other conditions remain the same.

QUESTION—Specify the conditions that must be fulfilled in order to secure good ventilation in a mine employing a large number of men.

ANSWER—The Anthracite Mine Law (Art. 10, Sec. 3) requires a circulation of not less than 200 cu.ft. per min. for each person employed underground, and as much more as circumstances may require. Not only must this requirement be met in the total amount of air circulated, but the mine must be divided into districts, to comply with the requirement (Sec. 6) that not more than 75 persons shall work at the same time on the same current or split of air. The law further requires (Sec. 7) that all air passages shall be of sufficient size to permit the necessary amount of air to pass at a velocity that shall not exceed 450 ft. per min. if safety lamps are in use, except in the main intake or return airway.

QUESTION—Explain fully the precautions necessary in the charging of storage-battery locomotives in a mine.

ANSWER—At all drift or slope mines, the work of recharging storage-battery locomotives should be done outside of the mine. At shaft mines or where recharging stations must be located underground, every precaution must be taken to have the place well ventilated and exclude open lights. It is of the utmost importance to see that the current is shut off promptly when the batteries are fully charged. If this is not done and the batteries are permitted to become overcharged, hydrogen gas is set free and there is danger of an explosive mixture forming, which may cause an accident when least expected.

QUESTION—Assuming five feet per second to be the proper velocity for air to travel, what must be the size of a road when the quantity of air amounts to 24,000 cu.ft. per min.?

ANSWER—A velocity of five feet per second is equal to $5 \times 60 = 300$ ft. per min. Taking this as the average velocity of the air current, the sectional area of the airway must be $24,000 \div 300 = 80$ sq.ft., which corresponds to an airway 8 ft. high and 10 ft. wide.

Examination Questions Answered

Examination for Mine Foremen Miscellaneous Questions

(Answered by Request)

QUESTION—If the rubbing surface of an airway is 150,000 sq.ft. and a velocity of 500 cu.ft. of air per minute is maintained by a water gage of 2 in., what is the quantity of air passing per minute?

ANSWER—The question should read a velocity of 500 ft. per min., instead of "500 cu.ft. of air per minute." A water gage of 2 in. corresponds to a pressure of $2 \times 5.2 = 10.4$ lb. per sq.ft. The quantity of air in circulation is then calculated as follows:

$$Q = \frac{ksv^3}{p} = \frac{0.0000002 \times 150,000 \times 500^3}{10.4} = 36,057 \text{ cu.ft. per min.}$$

The expression ksv^3 represents the work performed on the air, which divided by the unit pressure gives the quantity of air in circulation.

QUESTION—What does the Anthracite Mine Law require in reference to tamping bars and needles?

ANSWER—The law (Art. 12, Rule 30) forbids the use of an iron or steel-pointed needle in blasting, or the use of an iron or steel tamping bar, unless the end of the bar is tipped with at least 6 in. of copper or other soft metal.

QUESTION—The elevation of a point in the roof of the Red Ash Seam, is -27 ft., and the elevation on the bot-

tom of the Ross Seam, at a point directly above, is +180 ft.; what is the thickness of the rock between the seams?

ANSWER—Assuming that these seams are level or nearly so at this point, the thickness of rock separating them is $27 + 180 = 207$ ft.

QUESTION—In what part of the workings of a mine is the greatest pressure required for the removal of firedamp or marsh gas?

ANSWER—In general a firedamp mixture, like pure marsh gas undiluted with air, is lighter than the mine air, at the same temperature and pressure. For this reason, the tendency is for either of these gases to accumulate at the face of a steep pitch and in rise workings. The removal of these gases requires a higher pressure than where the gas is generated in dip workings, since, in the latter case, the tendency of the gas to rise assists in its removal.

QUESTION—(a) Where would you apply the water gage in taking a reading? (b) Will the reading of the water gage increase or decrease as the workings extend, other conditions remaining unchanged?

ANSWER—(a) The proper place to take a reading of the water gage is on the fan drift, at such a distance from the fan as to obtain a steady reading. If this is not practicable, the reading should be taken on a brattice or door

Scientific Classification to Rehabilitate Good Name of American Coal Abroad*

Limits Must be Sufficiently Narrow to Give Satisfactory Index of Quality and Inspire Confidence in Our Coal—Accurate Classification Declared To Be to the Advantage of Buyer and Producer.

By O. P. HOOD†

THE foreign buyer of American coals is confronted by a great variety and is furnished no ready means of judging their quality. We have no classification held within narrow limits on which he may depend. He must buy from certain pools whose general quality is represented to be shown by certain analyses, but the tolerance and range of quality which may be expected are not available to him. The result has not been particularly happy in building up a high opinion of American coal quality. Domestic users of coal also would appreciate a closer grading of coal, so that good coal classification is needed both at home and abroad if we are to build up a satisfied domestic and export trade.

The great advantages to transportation that result from pooling similar coals are so real that the practice probably has come to stay. The interests of the pooling method are best met by the smallest number of classes of coal that will suffice, while the buyer desires coal of uniform quality within rather narrow limits as to volatile matter, ash, heating value, size and stocking ability, requiring greater subdivision of classes. The buyer probably was best served when he received his coal from a single mine through well-tried producing and selling channels, but this has proved to be extravagant in transportation and handling facilities.

SCOPE OF SCHEME OF CLASSIFICATION

In any scheme of classification there must be as wide a variation as the purchaser can allow and as narrow a range as practicability will permit. At present there is no better basis of classification than chemical analyses and heating value coupled with a knowledge of the district from which the coal comes. While this leaves much unsaid and much to be desired, it is, nevertheless, much better than simple trade names, fashion, opinion or prejudice.

Such classifications as we have had use such analyses as a basis of grouping mines. I wish to show in this paper just what quality of coal has been included in previous classifications, to show the inadequacy of the practice and to outline a method whereby a more satisfactory condition may be brought about.

The Bureau of Mines has sampled and analyzed for our own and foreign governments a great deal of export coal. These records extend back ten years and the number of analyses and the quantities involved are such as to fairly represent the actual facts. In the accompanying figures three essential characteristics are shown for each of three classifications or grades of coal.

Class A refers to an old and well-known classification with most of the analyses referring to pre-war conditions. It has received a name that carries weight

and a favorable differential in price. Classifications B and C refer to a classification in use at present, which is being judged as American coal by the foreign buyer.

Mines in class A were selected as a result of the analyses of mine samples together with a large amount of sampling and analysis of the coal as delivered. In classes B and C the contributing mines have supposedly been grouped according to analyses of the product and a system of visual inspection has been maintained. In the accompanying figures each plotted point indicates the quality of from one to five thousand tons of coal and is itself often an average of several samples. In class A about half of the samples were taken by the Bureau of Mines and the sampling of the other half was done under standards set up by the bureau. In classes B and C the sampling was all done by the Bureau of Mines. All analyses were made by the bureau.

In Fig. 1, 2 and 3 the heating value of the coal from mines in each of the three classes is shown. The vertical ordinates represent the number of analyses which came within a range of 100 B.t.u.'s—that is to say, of all the analyses obtained, twenty-four fell within the range between 14,600 and 14,700 and two fell within the range 13,900 to 14,000. In class A it will be seen that while by far the greater number of analyses showed

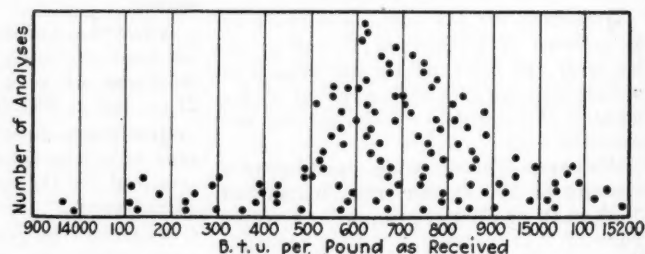


FIG. 1. CLASS A

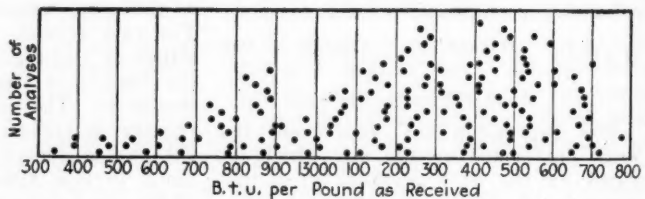


FIG. 2. CLASS B

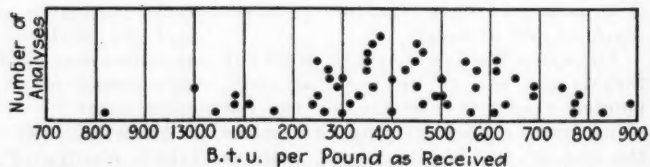


FIG. 3. CLASS C

In these figures the heating value of coal in the three classifications, A, B, and C, described in this article, is plotted with relation to the number of samples falling within a range of 100 B.t.u.

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†Chief mechanical engineer, Bureau of Mines.

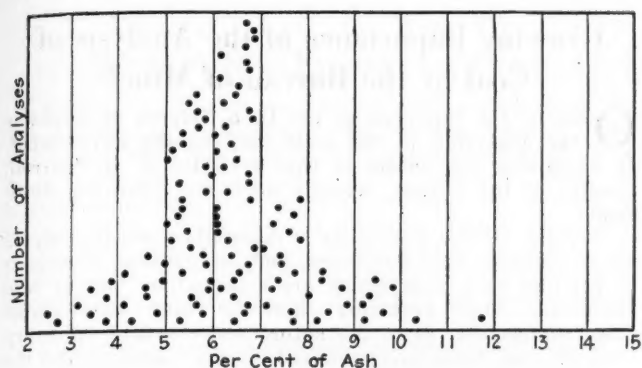


FIG. 4. CLASS A

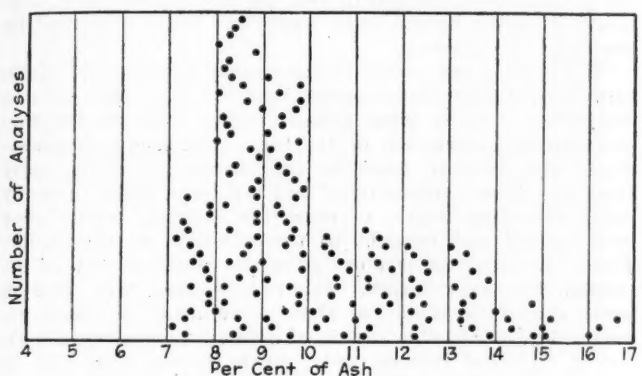


FIG. 5. CLASS B

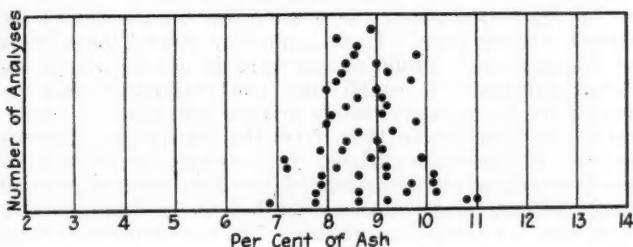


FIG. 6. CLASS C

In these figures the percentage of ash in the same samples as shown in the three classifications, A, B and C, in Figs. 1, 2 and 3 is shown.

a heating value above 14,500, there was a considerable number of scattering values below that figure, so that the total range is 1,000 B.t.u.'s or about 7 per cent. A buyer of this coal stood one chance in five of getting coal of the lower value. In class B the values are seen to range between 12,400 and 13,700, a variation of 10 per cent in the heating value. Class C is of the same coal, but with better preparation. If this coal were classified on a basis of heating value, this plotting would show where practicable limits might be drawn and what coal should receive special attention from the inspector.

In Figs. 4, 5 and 6 the percentage of ash in the same samples is shown. While in class A there is an evident attempt to keep below 7 per cent in ash, there are a number of analyses up to 10 per cent. In class B the ash varies from 7 to 17 per cent. It would appear that in general this coal might be expected to maintain a quality having not to exceed 10 per cent ash, but as a matter of fact, 40 per cent of the shipments contained more than 10 per cent ash and 23 per cent more than 12 per cent in ash. The ash content in class C seems to fall within the reasonably narrow range of from 7 to 10 per cent and a tolerance of 1 per cent in ash would have been taken advantage of in only five cases.

In Figs. 7, 8 and 9 the volatile matter of the coal

is shown. From any single mine and seam this figure usually varies within narrow limits. In order that the moisture and ash in these samples shall not influence the figure representing volatile matter the plotted figure represents the volatile matter divided by the total combustible. Class A, which is generally considered to be smokeless coal, shows a range of variation in this figure from 16 per cent to 27 per cent. Class B ranges from 37 per cent to 47 per cent, showing the inclusion of quite dissimilar coals. A large amount of this classification of coal is now being exported.

Foreign buyers are forming their opinions of American coals from classifications such as that of class B. It would seem that the quality of coal in these "pools" is not kept within sufficiently narrow limits to form a satisfactory classification or to inspire confidence in American coals.

There is nothing new in this exposition except that we have here a body of figures to substantiate the general opinion of our present pooling system held by operators producing clean coal. It would seem that it would be to the advantage of buyers, both American and foreign, and also to the advantage of coal producers, to have a classification which will come nearer doing justice to the good qualities of American coal than the showing here made.

To maintain a classification within more satisfactory limits there must be some means of determining coal quality that is better than classification by mines or

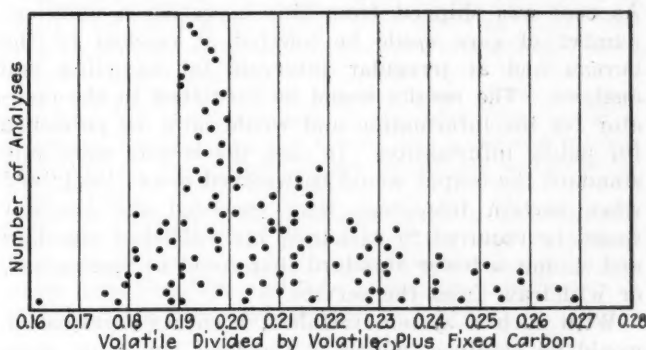


FIG. 7. CLASS A

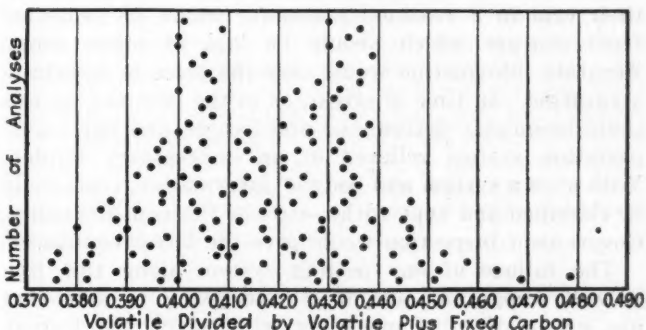


FIG. 8. CLASS B

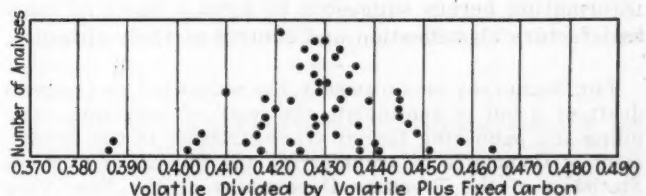


FIG. 9. CLASS C

Herein is shown graphically the relation of volatile matter to total combustible. In the three classifications, A, B and C, the moisture and ash in the samples do not influence the figures shown in this diagram because the points plotted are the ratio between the volatile matter and the total combustible.

by visual inspection. Visual inspection is entirely too uncertain in its results and contains too large a personal factor to be depended upon for satisfactory results. It appears that some operators are as much in the dark as to the quality of the coal actually shipped as are the buyers. There must be devised some system where the facts can be obtained both as a guide to the operator and to the purchaser. With the immense tonnage of coal to be handled it seems impracticable to determine the quality of individual shipments, although if one wants to speculate on possibilities it is interesting to note the practice in the sale of iron ore, which for many years has rested upon careful sampling and analysis. Recently coal has commanded a higher price at the mine than did iron ore when analysis as a basis for sale was adopted.

It is believed, however, that a system can be devised which is at once practicable and effective. If there were established at transportation gateways means of mechanically sampling coal with accuracy and expedition under the direction of an independent agency, as the Bureau of Mines, a service could be offered the mine operator which would be entirely optional but which would give him accurate information as to the quality of his coal. A coal operator well informed as to the quality of coal that he could obtain from a particular bed with constant preparation could declare a reasonable standard. He would be privileged to advertise that his standard was certified by the government. As coal was shipped from this operation a sufficient number of cars would be selected at random by the bureau and at irregular intervals for sampling and analysis. The results would be furnished to the operator for his information and would later be published for public information. In case the results were substandard the output would be watched more closely and when certain tolerances were exceeded the operator would be required to withdraw his published standard and submit a lower standard that could be maintained, or withdraw from the service.

With such a system installed, accurate information would be obtained, which in the long run must form the basis of satisfactory dealing. Operators preparing their coal in a reasonable manner would be protected from charges which should be laid at other doors. Accurate information would take the place of indefinite accusation. In time of stress, as in the late war, abuses could be quickly determined and located and our transportation system relieved of an unnecessary burden. With such a system and body of information, coals could be classified and kept within narrow limits as to quality. Government inspection would give the buyer confidence.

The failure of our pooling system along this line is well recognized, and it is interesting to note that one group of mine operators with whom the Bureau of Mines is co-operating have arranged to obtain the information herein suggested to form a basis of more satisfactory classification and control of their output.

THE SECRETARY OF COMMERCE has submitted to Congress draft of a bill to consolidate the work of collecting, compiling and publishing foreign trade statistics in the Department of Commerce by transferring the Bureau of Customs Statistics of the Treasury Department at the New York Custom House to the Commerce Department. The bill has the approval of the Treasury Department. It provides that the office shall be located either in Washington or New York, or partly in either, at the discretion of the Commerce Department.

Growing Importance of the Analysis of Coal by the Bureau of Mines

ONE of the functions of the U. S. Bureau of Mines is the analyzing of the coals used by the government. In explaining the nature of this work Dr. F. G. Cottrell, director of the bureau, recently made the following statement:

"A large service laboratory is maintained which analyzes all government coal purchases, and, in addition, thousands of samples each year which are collected by bureau field engineers. Thus gradually there is being accumulated exact information as to the nature and character of every kind of coal from every district in the country. In the actual testing work special attention has been given to the economic combustion of coal by the smaller user, represented mainly by the small hand-fired boiler plant and by the domestic consumer.

"It has been easier and cheaper, also, to study the small furnace, and much fundamental data has been obtained and disseminated as to what actually takes place in the furnace during combustion of the fuel. Utilization of lower-grade and cheaper fuels as substitutes for more costly fuels has been demonstrated and put into effect in many lines. Startling wastes of energy in ordinary plants have been proved and brought to the attention of the public. Today the situation is more alive and more worthy of attention than ever before. In pre-war days, with coal in many regions available at about a dollar a ton, care, refinements and possible saving of energy were often a matter of technical interest only, where today, with coal at several times the above price, even small percentage savings of fuel are a dividend-paying necessity.

"To the fuel engineer the possibilities for the future are almost without limit. To the man who doubts the wisdom of research with public money here is a field where the initial expenses of establishing and conducting real research are too great to justify private individuals or corporations in undertaking them from the standpoint of money returns to themselves alone; yet, because the results of the research affect thousands of furnaces each in a small way, the aggregate nation-wide benefit is immeasurably more than the initial expenditure. The successful researches of the Bureau of Mines with natural gas heating and cooking appliances are a case in view.

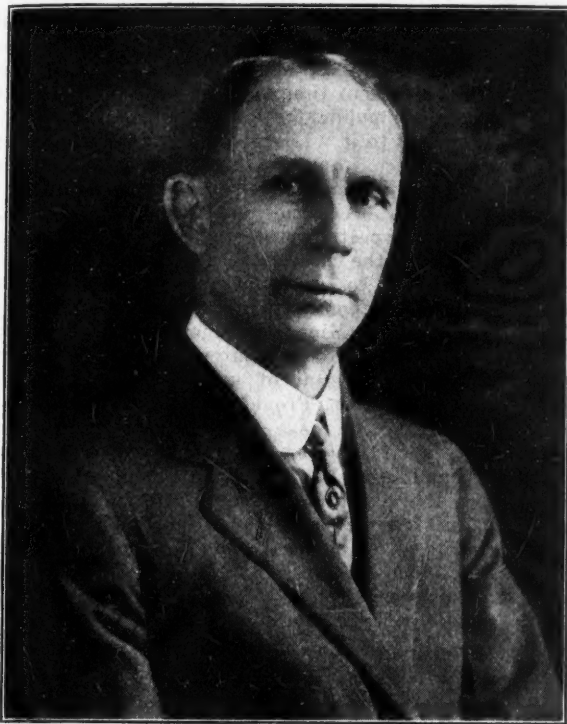
"For the future the public must realize that the serious city smoke troubles are remediable nuisances, dependent for remedy equally on the public, the fuel engineer, the consumer of coal and the fireman. Either the fireman and the man for whom he works must be taught to burn the coal without smoke or else artificially prepared fuels from which the smoke-forming tars and volatiles have been taken must be used. In both lines the interest of the bureau is paramount. The program should be: (1) Investigating, teaching and educating the great fuel-burning public to the money and health value of the right fuel, and the right furnace in the right place, fired in the right way; (2) aiding in the development of preparing new fuels, especially from waste and low-grade fuels, such as lignites. If we add to these problems the host of fuel problems that are acute in the petroleum product using or internal combustion field, and the necessity for getting more energy from the national and rapidly wasting asset—petroleum—we must see that the right use of fuel has become a national concern."

THE WORK OF THE FEDERAL TRADE COMMISSION in requiring cost reports in the coal industry was referred to in testimony before the House Appropriations Committee on the sundry civil bill. Chairman Thompson said if the commission had been able to continue its coal work and thereby place before the public the cost of producing coal and the extent of its production, the information "would have tended to lessen the present reaction." He believed the Supreme Court would hold that the commission had jurisdiction in this respect. Chairman Good of the committee said the "question with me is whether Congress delegated all the power in that respect in the language which it employed in creating the commission."

C. E. Maurer 25 Years a Mine Operator ; Eastern Ohio Friends Celebrate

ABOUT seventy-five eastern Ohio coal operators of the Pittsburgh Vein Operators Association gave a luncheon on Tuesday, Dec. 21, at the Hotel Cleveland, Cleveland, Ohio, to commemorate the completion of twenty-five years of activity in eastern Ohio mining operations by Charles E. Maurer, formerly president of the Glens Run Coal Co.

The affair was in the nature of a surprise and at the beginning of the luncheon the chairman announced that the associates of Mr. Maurer had simply gathered together



CHARLES E. MAURER

Formerly president of the Glens Run Coal Co.

as a tribute to him. However, after the luncheon Thomas K. Maher, president of the Maher Collieries Co. and the Pittsburgh Vein Operators Association of Ohio, presented to Mr. Maurer on behalf of the association members a handsome chest of engraved silver.

Mr. Maurer up to a short time ago was president of the Glens Run Coal Co., of Cleveland, operating mines in Jefferson County, Ohio, which property was disposed of to the Youghioghney & Ohio Coal Co. For many years he was prominent in the wage scale negotiations with the miners and on many occasions was the chosen representative or spokesman for the operators because of his intimate knowledge of this deeply-involved subject.

The Committee on Arrangements for the luncheon consisted of W. R. Woodford, president of the Rail & River Coal Co.; Attorney W. C. Saeger, of Bulkley, Hauxhurst, Saeger & Jamison, and B. C. Tucker, president of the Brilliant and Jean Coal Mining Companies.

Advocates Liberal Leasing Law to Encourage Development of Alaska Coal Resources

IN HIS annual report to the Secretary of Interior, the Governor of Alaska says that while the coal leasing law is not entirely satisfactory, it is a step in the right direction. He recommends a broader policy for development, under laws, instead of regulations. Strikes seem to be spreading, as the Governor records that the few miners employed by the Alaskan Engineering Commission in mining coal went on strike for increased wages, followed by

a strike of miners in the Bering River field, which strikes, however, have been settled.

The Governor says that the greatest progress in coal development in Alaska has been in the Bering River field by the Bering River Coal Co., although a miners' strike last winter delayed development. The company has developed 40,000 tons and expects to achieve an output of 50 tons a day, which will be sent by mine trucks over a plank road to Bering Lake and then will be moved by barges to Controller Bay or Cordova.

He recommends amendment of the coal-leasing law to relieve lessees of payment of rentals on lands under lease for the first five years of the lease, and that no royalties be imposed until after the development period. He bases this recommendation on the ground that rents and royalties during the development period are discouraging.

He says a high grade of lignite coal is reported from Nenana, but it is not considered an export coal, but can be used in the towns and mining districts. This coal is being used in homes and on the northern division of the government railroad. Lignite also is mined in Cook Inlet and is used by canneries and towns. Coal is reported also in the Kuskokwim mines.

He says that, because of oil shortage, steamships contemplate converting from oil to coal burners, which, he adds, will mean an immediate demand for Alaska coal. He says the establishment of a coaling station in the Aleutian Islands for naval and commercial purposes is being considered.

Stone Incoming Workmen and Fire on Troops in Mingo County, West Virginia

SEVERAL workmen coming into the strike field to work at Merrimac, W. Va., Jan. 2 were stoned, apparently by union men. The soldiers who were guarding them from attack were fired on from the mountains of Kentucky, which tower up above the Tug River which forms the boundary line between West Virginia and Kentucky. They returned the fire. The superintendent of the White Star mine at Merrimac declares that he knows who were the persons who fired on the troops and will swear out warrants for their arrest.

The Williamson Coal Operators' Association announced that the Burnwell Coal and Coke Co.'s mine at Sprigg, W. Va., and that of the Alburn Coal Corporation at McCar, which have been idle since the beginning of the strike in July, have started to produce coal.

COAL PRODUCED IN Madison County, Illinois, for the year ended June 30, 1920, amounted to 3,895,127 net tons, a gain of 34,525 over the previous fiscal year. There were 210 men injured and required to be away from work for a month or longer and each non-fatal accident represents the production of 18,548 tons of coal. The total number of men employed during the year was 4,142 or 507 less than the previous year. Twenty-six mines were in operation during the twelve months. Seventeen of the mines ship to other places, principally St. Louis. Shipments by rail were 3,631,612 tons. Local sales were 133,615 tons and the mines consumed 121,567 tons as fuel.

OPERATORS IN CLEARFIELD COUNTY, PENNSYLVANIA, who were paying bonuses to employees for work in excess of normal production have with the new year decided to cease that practice and pay the straight union wage. Present prices and the demand of today, the operators believe, do not justify payments of extra compensation for large coal outputs.

BY WAY OF JUSTIFICATION for the increase asked in the appropriation covering the mineral resources of the United States, Dr. George Otis Smith, director of the Geological Survey, points out that the public's dependence upon the Survey's weekly and monthly reports of fuel production was never more evident. He states that additional facts on consumption and distribution are needed to forecast shortages or to warn against over-productions.

Plan Central Agency to Purchase All Government Coal; Head of Bureau of Mines Supports Project

A CENTRAL coal-purchasing agency which would procure all of the government's supplies, except that intended for the use of naval craft, is being considered as an outcome of the recommendation of the Calder committee for the establishment of such an agency. The draft of a bill which would enlarge the Government Fuel Yard, being operated by the Bureau of Mines, is under consideration. H. Foster Bain, acting director of the Bureau of Mines, makes the following statement in support of such legislation:

"Dr. Foster, former chairman of the House Committee on Mines and Mining, became interested in 1915 in this matter of a central coal-purchasing agency for the Federal Government and his bill, introduced in December, 1915, to provide for the selection and purchase of fuel for the Federal Government by one central agency, named the Bureau of Mines as this agency.

"This bill provided for the centralized purchasing of coal for all branches of the Federal service in Washington and out of Washington. Legislation was accordingly enacted, effective July 1, 1919, providing for the establishment of the Government Fuel Yards under the Bureau of Mines, Dr. Foster deciding to await the results to be obtained in the operation of the Government Fuel Yards for a year or two before pressing for the enactment of further legislation extending the coal-purchasing authority to cover coal for use by the Federal Government outside of the District of Columbia.

"I think it has been satisfactorily demonstrated during the last two and one-half years that the establishment of the Government Fuel Yards inaugurated a wise government policy, both from the view of insuring an uninterrupted supply of coal and from the viewpoint of securing this coal economically. During this period of two and one-half years since the establishment of the Government Fuel Yards no Federal or district government heating or power plant has been obliged to let its fire go out or curtail its coal consumption at any time because of the failure of its coal supply. I believe you will agree with me that, in view of the coal situation and different strike conditions during that period, this is a particularly good record. Your committee has, moreover, evidence showing that the *Government Fuel Yards secured this coal at a lower price than that paid by certain other branches of the Government service* for coal inside the District of Columbia.

WOULD EXTEND PURCHASING AUTHORITY

"The time is here, I think, for extending this coal-purchasing authority of the Bureau of Mines to cover the coal required by the Federal Government outside as well as inside the District of Columbia.

"There are other reasons for the belief that the Bureau of Mines can purchase coal required by the Federal Government more cheaply and satisfactorily than can a number of agencies or any other single agency. A large part of the mines safety work of the Bureau of Mines relates to safety in coal mines and the Bureau has a force of more than fifty engineers and other mine safety men working out from twenty headquarters points in the different mining districts of the country. Engineers engaged in this work in the different coal fields are in a position to secure information with respect to kinds and grades of coal available for shipment and to assist in the placing of advantageous contracts for coal supply. This safety work has been built up, without police powers or compulsory legislation of any kind, through co-operation with the mine operators and the miners and the Bureau has had reason for feeling that because of this and other work it enjoyed in large measure the co-operative regard of the coal mining industry.

"In addition to the proposal to extend the work of the Bureau of Mines to cover the purchase of coal required by the government outside of the District of Columbia, I wish

to bring to your attention the proposal presented to Congress by Secretary Lane in his annual report of 1919 for a fuel inspection service in this country for the purpose of protecting the coal consumer in securing the kind and quality of coal for which he paid. I am enclosing copy of the proposed legislation as approved by the Secretary of the Interior in the estimates for 1921 and in the estimates for 1922. This is a matter of applying engineering knowledge and technical skill to the reduction of the country's coal bill. At the present time there is no machinery available to the general public for determining the quality of coal shipped or sold to it. Likewise, no machinery is available to protect the coal operator producing good and clean coal. The Federal Government inspects on behalf of the general public such necessities as grain and meat; it is believed that this inspection protection should also be available to the public in the case of the necessity called coal."

The bill necessary to accomplish the purpose, which is now before the Calder committee, reads as follows:

"That the Bureau of Mines is authorized and directed to select and contract for all coal required by any branch of the Federal service at the seat of government or elsewhere within the United States: Provided, that the selection and purchase of coal may be made direct by any branch of the Federal service upon the approval by the Bureau of Mines.

"Sec. 2. That it shall be the duty of the Bureau of Mines to investigate the coal burning equipment of the different branches of the federal service and their methods of handling, storing and using coal, and to recommend such changes in equipment and in use of equipment as will result in the greatest fuel economy.

"Sec. 3. That each branch of the Federal service shall furnish to the Bureau of Mines such information relating to its fuel-burning equipment, fuel consumption and fuel use as may be requested by said Bureau.

"Sec. 4. That the director of the Bureau of Mines is authorized to contract for the purchase of coal for the different branches of the Federal service in advance of the availability of appropriations for the payment thereof, but such contract shall not exceed the necessities of the current year.

"Sec. 5. That the different branches of the Federal service are authorized to purchase, under the contracts made by the director of the Bureau of Mines, during April, May and June of each year, such quantities of coal for their use during the following fiscal year as it may be practicable to store at the points of consumption, payment therefor to be made by the branches of the Federal service from their applicable appropriations for such fiscal year.

"Sec. 6. That each branch of the Federal service shall pay to the Bureau of Mines an amount to be fixed by said Bureau, but in no case to exceed 2c. per ton, for each ton of coal purchased for said branch of the Federal service; such payments shall be deposited in the Treasury of the United States to the credit of the Bureau of Mines and may be expended for the employment of personal service in the District of Columbia and elsewhere and for all other expenses requisite for and incident to carrying out the provisions of this act; provided, that not more than \$100,000 may be expended in the enforcement of this Act in any one year."

SEWARD BUTTON, CHIEF OF THE State Department of Mines of Pennsylvania, has been asked to rule whether sixty men of Spanish birth who cannot speak English shall be allowed to continue at work in the gassy mines of the Lehigh Coal & Navigation Co. The conference at which the request was made was attended by Thomas Kennedy, president of the Hazleton miners, and Thomas Hartneady and Thomas Gallagher. The mine workers asserted that the employment of these men was a violation of the law. The decision will have far-reaching effect.

Salient Features of the Calder Coal Act

TO PROMOTE the "general welfare" and to recognize and declare coal and its production charged with public interest and use, and for other purposes, Senator Calder introduced on Jan. 10, 1921, his bill to regulate the coal industry. The "Federal Coal Act," for it is so officially designated and therefore travels under no alias, charges that coal and its sufficient and economical production and proper distribution, and information respecting "ownership, production, distribution, costs, sales, and profits in the coal industry are necessary to the general welfare of the people of the United States" and to Congress for the purpose of legislating respecting interstate and foreign commerce, public health, taxation and other matters, and that the coal industry in all its phases is "hereby declared to be charged with public interest and use."

The Federal Trade Commission is given sweeping powers and directions as to requiring and obtaining current reports from all engaged in the production and sale of coal with no limit as to its inquisitorial power. Even consumers may be required to furnish information as to coal consumption and stocks. The commission is directed to collect certain minimum data currently and to make reports to Congress and to promptly publish its findings. The commission "shall" name any who are judged guilty of having charged a price deemed unreasonable.

All reports to the commission are nevertheless declared to be confidential and are to be rendered under oath. The commission may, however, by a majority vote of its members publish any individual report if deemed in the public interest and any court of competent jurisdiction may require and shall be furnished reports of individuals or of separate companies.

Associations having to do with the coal industry are designated for special investigation, for which the full powers conferred by the bill are declared available, again when deemed necessary in the public interest.

Railroads are required to submit detailed information to the Interstate Commerce Commission, and that commission is directed to collect from the roads data regarding mine rating, loading, movement, reconsignment and other matters. To settle any doubts that may arise as between the reports submitted, as, for instance, regarding car shortages, by the operators to the Trade Commission and by the railroads to the Commerce Commission, these two bodies are adjured to "get together" on the facts.

SURVEY TO CONTINUE TO PUBLISH REPORTS

It also is provided that the Geological Survey shall continue its present series of reports in all details and shall publish them and any additional data that may be required in the public interest. One important feature for the Survey is the provision that the Federal Trade Commission and the Interstate Commerce Commission are authorized and directed to use their legal powers to obtain any reports the Geological Survey may not be able to obtain on its present purely voluntary basis. In other words, the Survey will be given power indirectly to require reports, whereas now it has no such power and has not asked for it. The act gives no powers to the Survey, but confines them to the two other agencies named. Access to books of coal companies and right to subpoena papers, records and witnesses is conferred on the Federal Trade Commission.

Neglect or refusal to meet the demands of the commission may be penalized by fines of not less than \$1,000 or more than \$5,000 or by imprisonment of not more than one year. A penalty of \$100 per day is provided for neglect to make reports, and heavy fine or imprisonment for making incorrect reports. Any employee of the Federal Trade Commission who shall divulge without authority any confidential information is liable to \$5,000 fine, jail sentence, or both.

To furnish a check on what is going on the bill says that the President shall issue a license to any and all who fall under the jurisdiction of the Federal Trade Commission, and any who shall wilfully engage in the coal business without such a license in good standing and shall be liable to a \$5,000 fine or jail. Each applicant for a license must agree

in writing to rigidly abide by the requirements of the act.

No license may be required from any operator or dealer whose gross sales during *this preceding fiscal year were less than \$50,000*. Section 12 is one of the most striking in the act in that it states that when the Federal Trade Commission shall determine that an emergency exists or threatens in the coal industry, which seems likely to produce a shortage or bring about unusual or unwarranted or unreasonable prices in coal and to be *detrimental to the public health* in any part of the United States and the President shall have concurred in such determination by the commission, the President is authorized to declare the existence of an emergency which threatens the *public health*, and he is empowered to fix a maximum price, commissions and margins during that emergency. He is further empowered to revoke the license of any operator or dealer who shall exceed the maxima established by him, in addition to which, of course, the producer or dealer so exceeding the legal limits is liable to fine and imprisonment. The President is authorized to deal in coal and to control production, movement and distribution to the extent that it may be necessary, again for the protection of the public health.

Except that industrial concerns may own and operate coal mines for their own use and consumption, Section 13 forbids any owner, operator or dealer to sell coal to any concern in which he or any agent of his shall have an interest, except the sale be made under open competitive bidding.

Coal procured directly from an operator by a dealer and sold to another dealer is subject to a brokerage tax equivalent to one-half of the commission or margin in excess of 15c. a ton and not more than 30c. a ton. Where the commission or margin exceeds 30c. a ton the brokerage tax that shall be levied under Section 14 of this act is equivalent to three-quarters of the total.

HEAVY TAX ON TRADE BETWEEN DEALERS

Trading in coal between dealers in coal, not obtained directly from operators, is practically prohibited by the levying of a tax of 90 per cent on all commissions or margins in excess of 5c. a ton. No tax shall be assessed against any dealer whose gross annual sales during "his preceding fiscal year" aggregate less than \$500,000 on sales of coal procured directly from operators.

The Department of Labor and the Bureau of Mines are thrown in for good measure. The Secretary of Labor is directed to investigate wages, working conditions and other matters pertaining to the workman, in order to supply information for use at any time of general readjustment of wage contracts in the coal industry. The Bureau of Mines is directed to investigate mining methods, storage of coal and other technical matters, none of which apparently represent new duties or powers for that bureau. It is, however, provided that the Bureau of Mines shall investigate and report on statutory standards and inspection for the various kinds and grades of coal.

The Federal Trade Commission, the Interstate Commerce Commission and the Geological Survey are given blanket authority, through the President, to call for any and all information in the possession of any other government office or for the detail of personnel. The President also is authorized to transfer personnel, equipment, records and funds from one bureau to another, as may be deemed necessary in fully carrying out this act.

The aforesaid triumvirate also are directed to keep their records thoroughly revised and available for immediate reference, and subject to the call of any private or public board, state or federal, for use in settling any labor dispute.

The Federal Trade Commission and the Interstate Commerce Commission are given power to make and enforce rules and regulations and to prescribe the method of procedure, it being specifically provided that this act does not limit or repeal any of the powers of either of these agencies under existing law. To permit the carrying out of the detail work called for by the act, \$10,000 a year is to be appropriated to the Geological Survey, the same amount to the Interstate Commerce Commission and \$25,000 to the Federal Trade Commission.

The Weather Vane of Industry

News Notes Chronicling the Trend of Industrial Activities on Which Depends the Immediate and Future Market for Coal

ALTHOUGH the general business situation has changed but little during the past months, there are pronounced indications that the first shock of the present depression is over, according to an announcement Jan. 22 by the U. S. Chamber of Commerce.

"The most cheering and hopeful feature of the situation," the report says, "is the fast spreading realization that what we are going through is the only possible way to teach us the indispensable need of hard, conscientious work, some thought of obligation to our tasks, and getting back once more to those temporarily lost arts of salesmanship, of common sense merchandising, of economical, efficient production and distribution. Only thus can we give service in every phase of national life. The railroads have set the example of retrenchment, by company, by team work, and by the best service they have given in years. And that is what every other business will have to do if it is to save its soul alive.

"Automatically everywhere production is adjusting itself to demand. This phase has finally reached the iron and steel industry, and is general throughout industrial life. Textile mills got theirs first, and consequently, because of lower costs of production, seem farthest advanced on the road to readjustment. At this writing more of them are resuming than shutting down. Automatically the situation is tending to a more normal relation between supply and demand, which means the solution of many of our problems.

"Dealers who on a falling market are endeavoring to sell only on high prices they paid, rather than on replacement costs, are fooling only themselves as to their ability to get away with it; as are also those manufacturers who have elaborate reasons why they should maintain war prices indefinitely.

"The remedies so far proposed to Congress are mere temporary expedients, of which it is doubtful whether they will even accomplish their passing purpose. The fundamental soundness of the situation is widely felt. The general mental attitude, while recognizing the completeness of the collapse of inflation, perceives that it was not only inevitable but necessary before a more enduring basis could be reached. This is the basis for that widespread undertone of confidence in the not far distant future. Always provided, of course, that we work out our salvation with common sense and judgment, rather than with fear and trembling."

Textile Plants Speed Up

An extension of time schedules announced as reflecting improvement in business was reported in several textile mills in Pawtucket, R. I., Jan. 17. The Jenks Spinning Co., employing 2,500 operatives, after being shut down resumed operation with several departments on a four and five-day schedule. The Lorraine Manufacturing Co., employing 2,000 changed from three days a week to a five-day schedule. The Waypoyset Co., employing 1,000, began a five and a half day schedule after operating some departments three and

others four days a week. The Smith Webbing Co., employing 150, went on practically full time.

Twenty Tin Plate Mills Open

Twenty mills, one-half of the productive capacity of the McKeesport Tin Plate Co., resumed operations Jan. 17 after being idle since Dec. 23. Sixteen hundred men were affected by the resumption which was at the old rate of wages. Mill officials said they were unable to say when the remainder of the plant would be placed in operation.

N. & W. to Build 1,000 Coal Cars

The Norfolk & Western R.R. was planning to build 1,000 120-ton steel coal cars in its Roanoke shops. Tests of this new and larger type of car have been completed and the result is reported satisfactory. It is understood that there are five hundred 100-ton cars now under construction at Roanoke, Va. The Virginian Ry. is said to be the only other carrier to have adopted the heavier type of coal car.

\$3,000,000 Shoe Orders Placed

Orders approximating \$3,000,000 were placed during the four-day convention of the National Shoe Retailers' Association at Milwaukee during the week ending Jan. 15, James P. Orr, president, said. The organization comprises nearly 6,000 active members and as many more associate members, he said. "Retailers will now anticipate their requirements and shoe factories will open. Steady employment for workers will result."

Durant to Erect Michigan Plant

It was reported Jan. 17 that Durant Motors, Inc., formed recently by W. C. Durant, former head of the General Motors Corporation, has practically decided on the erection of a plant at Flint, Mich. Another plant probably will be built in the East.

Willys-Overland Co. Resuming

Gradual resumption of manufacture of automobiles at the Toledo plant of the Willys-Overland Co. was announced Jan. 14 by Charles B. Wilson, in charge of operation. The plant has increased its working force between 400 and 500 men, bringing the total from practically zero up to approximately 1,200, Mr. Wilson said.

Railroads Continue to Retrench

A new general order for another 10 per cent reduction in expenses of the Pennsylvania R.R. system, making a 20 per cent cut since November, is the explanation given for the widespread movement to lay off employees or decrease the hours of employment. All classes of railroad employees are affected. In many cases the reduction will be made by lessening the number of hours of employment each week, rather than by discharge of employees.

About 2,000 employees of the Norfolk & Western R.R. were laid off Saturday, Jan. 22. The cut is effective over the entire system and affects practically all shop departments. This reduction makes the total number of men laid off recently about 3,500.

Will Attempt to Jam Calder Bill Through Congress; Expect Favorable Report by Manufactures Committee

A DETERMINED effort will be made at this session of Congress to jam through the Calder bill, providing a drastic form of control for the coal industry. It is believed that the Committee on Manufactures will report the bill favorably to the Senate in the near future. It is understood that an effort is being made to pass a special rule in the House to insure consideration of the measure by that body, in case it should pass the Senate. Such a rule probably would limit debate on the measure to two hours. The rules of the Senate permit of no such cloture. Practically the only hope of stopping the measure is that Senators opposed to this type of government control either will talk the measure to death on the floor of the Senate or vote it down. This proposed legislation is generally considered as important as the Sherman law.

If the unexpected should happen and the bill be passed, the consensus of legal opinion is that it will require a constitutional amendment to put the provisions of the measure into operation. This, however, is not deterring the advocates of the bill, who are displaying the greatest energy in an effort to advance the measure before the public forgets the high prices some consumers had to pay for coal.

Ample opportunity has been given by the Committee on Manufactures for representatives of the operators to present their views. Incidentally, representatives of the coal producers availed themselves of the chance to correct some of the erroneous impressions which might have been formed because of the failure of the Calder committee to allow the operators to complete their case. Ralph Crews, in the course of his testimony, declared that there is more misinformation afloat in regard to the coal industry than there is about all other industries combined. J. D. A. Morrow, vice-president of the National Coal Association, testified at length and made the principal presentation for the operators.

GEORGE OTIS SMITH ADVOCATES CONTROL

One of the sensations of the hearing was a declaration by Dr. George Otis Smith, director of the U. S. Geological Survey, that traffic in coal is no longer a private business and that it is a proper subject for as effective control as is exercised over the public utilities. Coming from a man of Dr. Smith's standing, great weight is given his view. Dr. Smith is known as a conservative.

Extracts from Dr. Smith's remarks in this connection are as follows:

"Inasmuch as coal can be considered the one word that best expresses industrial power on the one hand and domestic comfort on the other, I feel that the time has come when we can regard the coal industry as a subject for effective governmental control. This, speaking in plain language, would be putting the coal trade in the same category with public utilities, and I think that we must come to regard it as a proper subject for as effective control as is exercised over the public utilities.

"As to the degree of control warranted, I will say that this bill provides for two types of control. One might be called emergency control, and the other is in regard to

control in normal times. I think the desire for emergency control is based upon the fact that coal is essential for the operation of railroads and public utilities and that certain priorities of use must be determined in time of emergency. We did that during the war emergency.

"We have discovered that there are emergencies in days of peace as well as in times of war. The agency of control in normal times, as I read the bill, is publicity. I do not see how a mine owner, a coal-land owner, a mine operator or a mine worker can raise any objections to the facts being made known to the public with respect to that operation—a clear analysis of the disposition of each dollar spent for coal. I think that this publicity is the keynote of the legislation that you are considering. I do not see how those who are connected with the industry, those to whom it means daily bread and butter, can object to such facts being made public.

"Public information can do much in the way of regulating an industry like the coal industry without a great amount of legislation, but it cannot do much without having the facts. This bill proposes to bring out the facts not in time of emergency on a rush order, facts that are not necessarily the normal facts of the industry, but to make these facts available every day in every week. If we know what is happening, we can prepare for the emergency as the emergency begins to appear. The public nature of the coal industry warrants a large amount of attention on the part of the Federal Government.

INDUSTRY ENTITLED TO CONTINUOUS LIVING

"When I speak about the regulation of prices I think that we must recognize that allowance must be made for a fair return to the coal operator—not simply for the year, but a fair return must be made for a series of years. The coal operators of this country have had a good many bad years over which to distribute their recent profits. Those who reap the largest harvest are the newcomers in the business. Every industry deserves a living through its whole period rather than during occasional years. If not, the consumer will be the profiteer in the lean years as much as the operator is the profiteer in the fat years. The margin, which we term 'fair return,' should be large enough to set aside a surplus to take care of the lean years. This the public owes to any industrial or transportation company. Otherwise, we must pay an excessive amount for capital on account of the excessive risk.

"I have prejudices against price fixing, but I think we have to face a condition. If a government agency, supposedly impartial and supposedly fairly well informed, does not direct and influence the law of supply and demand, some more selfish interest will direct and influence it.

"If we regulate the coal industry, I hope that we can begin with the idea of regulating upward as well as downward, with the idea of being constructive as well as repressive. When price fixing is necessary I think that the price fixed will have to be such as to keep in production the higher-cost mine. The price must be enough to allow the operation of every mine you need at that particular time."

That Senator Reed, of Missouri, does not agree with Dr. Smith's conclusion in the matter may be judged from the following:

"We must choose between allowing citizens to conduct their businesses themselves, buying and selling as free men in a free market, letting them use their own judgment as to the amount they can sell and consequently the amount they will produce, or to have some gentleman down here at Washington undertake to regulate the whole business. If the gentleman at Washington were infallible and could state, looking ahead like God Almighty, just how much coal we are going to need and just how we could produce it, that would be the thing to do."

Senator Reed argued that any emergency which would

interfere with the delivery of flour or milk or shoes would come in exactly the same category as an emergency in coal and that if price fixing and regulation are to be resorted to, it would have to apply to all the necessities. "It is about time," said Senator Reed, "to find out that the war is over and let the men who built the business of the United States go back and run that business. If they violate any laws, if they combine to rob anybody, put the good old laws of the United States in effect against them."

Senator Gronna said that price fixing would mean the ruination of some industries, including that of producing wheat. The point had been made in the hearings that wheat is as necessary as is coal and should be subject to the same type of regulation.

Both the Calder special committee and the Manufactures Committee held forth on coal last week, the former hearing witnesses as to high anthracite prices in Washington, D. C., and the latter taking testimony on the Calder bill.

Before the Committee on Manufactures of the Senate on Jan. 18 Interstate Commerce Commissioner Clark and Chairman Thompson of the Federal Trade Commission also testified in favor of the provisions of the bill, generally endorsing the purpose of the bill and suggesting modifications of a minor character.

The only opposition that early developed was that by the National Coal Association, and the burden of objecting to the measure was ably borne by J. D. A. Morrow, vice president of the association, who said it would change the present system of government and industry.

CALDER AND COUNSEL IN ATTENDANCE

Senator Calder, of the special committee, although not a member of the Manufactures Committee, was a frequent attendant, as were also Counsel Miller and Chantland of the Calder committee. Although active in questioning witnesses before the Calder committee, Senator Kenyon, who is a member of both the Calder and Manufactures Committee, did not ask many questions of witnesses before the Manufactures Committee, the main questioning being by Senators Reed, of Missouri; Jones, of New Mexico, and Walsh, of Massachusetts. The Senators by their questions seemed to feel that the coal industry should be regulated in the interest of an equitable distribution of coal and in the interest of reasonable prices.

In opening the hearing Chairman Clark of the Interstate Commerce Commission favored an even monthly production of coal, which he said could be handled by present car facilities. He referred to the storage of coal at the Lake docks as an argument for storage but said that many manufacturers, particularly in Detroit, had no storage facilities, and bought through brokers.

Senator Kenyon questioned as to the control of the anthracite trade and the effect of freight rates on that coal, seeking to learn why anthracite rates had not been given the 15 per cent freight advance in 1910. Mr. Clark said that before 1910 anthracite rates had been adjusted and he was not sure whether the 40 per cent increase on anthracite freight last summer would be taken off the price of coal if the increased rate were removed. Senator Kenyon thought the freight rate had something to do with present coal prices.

Director Smith said his division could carry out the provisions of the bill with respect to statistics, and said that in the last five years statistics on coal have largely increased in interest and value. He said little argument was necessary to show the relation of coal to the well being of the country, domestic and manufacturing. He did not think high prices represented a large amount of the coal tonnage sold.

Mr. Tryon, coal statistician, who accompanied Director Smith, was asked as to coal resources. He said exports last year amounted to 21,750,000 tons and Senator Walsh insisted it was the placing of an embargo on British coal for export that caused British buyers to come to America to purchase coal for their trade, thereby forcing up prices here. Mr. Tryon thought there were other causes, including adjustment of wages in various fields and the coal strike.

Director Smith said the United States had half of the coal resources of the world and that Alaskan coal would

be available on the Pacific and estimated that 50 per cent of Illinois coal was not mined, but left underground, whereas a 95 per cent recovery was obtained in West Virginia.

In response to a question by Senator Reed Dr. Smith said efficiency of mine operation in the United States is in advance of mining operations in other countries and is being constantly improved upon. The percentage of recovery had increased in the last twenty years. The per man product of mine workers is two to four times that of foreign mines. The product of mine workers was steadily increasing while that in Great Britain was decreasing, due to larger use of machinery in this country.

Dr. Smith said coal could not be stored at the mines but must be loaded as mined. The ideal storage place was near the point of consumption.

Vice President Morrow of the Coal Association said contracts covered four-fifths of the coal sold last year and that the I. C. C. priority orders reduced instead of increased prices.

Senator Walsh got into a controversy with Mr. Morrow over the export of coal and its effect on prices and Senator Reed intervened, insisting that the witness be allowed to answer in his own way and not be choked off by the Massachusetts Senator. Senator Walsh said the witness need not be defended by Mr. Reed and offered to quit questioning, but Senator Reed smoothed it over and Mr. Walsh continued.

Senator Walsh insisted that high prices were caused by operators selling for export trade at higher prices and said he objected to the indifference of government officials in seeing that the business was not regulated in the interest of the consumer, contending that the government should have embargoed coal when New England needed coal, instead of permitting its exportation to British buyers who were not able to export from England because of an embargo on exports from that country. Mr. Morrow insisted that as long as manufacturers had the right to use coal and ship their products an embargo should not be applied to coal, but if applied should be applied to all industries.

EFFECT OF EXPORTS IN BOOSTING PRICES

Senator Walsh insisted that exports doubled in April and May, when the production here was at its lowest figure, which increased the price. He insisted that the export market diverted coal from West Virginia to foreign buyers, who offered any price for the coal. Senator Walsh remarked that although Mr. Morrow had no figures on West Virginia coal, the National Coal Association had sought to protect the industry against legislation. Senator Walsh said the cost doubled and trebled to consumers in these months. Mr. Morrow replied that it was not due to the foreign demand.

"How can you know there were other factors when you have no information?" demanded Senator Walsh. Mr. Morrow said the New Haven Railroad had four or five agents in West Virginia competing against each other for coal, but he did not know their names, and the Boston & Maine had contracted for only two-thirds of its coal, playing the market, and guessing wrong. Mr. Morrow said reckless bidding for coal by manufacturing interests, and not foreign buyers, caused the high prices. He also said there was no other market for West Virginia coal except the export and an embargo would have closed the mines, as it could not go west because the equipment was too heavy for the rails. Mr. Morrow also insisted that New England had not contracted for its coal, and Senator Walsh said the government had a right to relieve those who did not make contracts dictated by the operators.

Senator Jones questioned as to whether a contract was advantageous as prices may be obtained later at better figures. Senator Jones did not think the government ought to sit by and see prices increase when there was no corresponding increase in production cost. Mr. Morrow insisted that transportation would solve the price situation. The trouble would not be cured by price regulation. If the condition was permanent, price regulation might be all right, but he said the past conditions would never happen again.

Senator Jones thought some government agency should control shipments so as to insure reasonable prices. Mr.

Morrow said this would embark the government on price fixing without deliberation and with haste. He declared the bill proposed fundamental changes in the conduct of government and business. Senator Jones said the legislation was not hastily proposed, referring to hearings two years ago by the committee and also to the Calder hearings. Mr. Morrow pointed out that at present the states regulate the coal industry and referred to the Pennsylvania law. Senator Jones said the committee had as much information as it could get from anybody interested in the coal business.

Attorney Ralph Crews of the Consolidation Coal Co. referred to the decision of the 1920 Bituminous Coal Commission as argument against government coal regulation. He said the commission had stated that transportation facilities and seasonal production were remedies, along with storage at Tide against shortages. He said the coal industry was overdeveloped as far as mines and workmen were concerned and declared that at present many coal cars were on the tracks awaiting shipping instructions, indicating "no market."

Discussion also developed as to lost time in the coal-mining industry, and Mr. Crews said it had averaged ninety-three working days a year in the last thirty years, and Senator La Follette brought out that 10 per cent of the lost time was due to strikes. Mr. Crews declared the bituminous mines were able to turn out 700,000,000 tons of coal, or 200,000,000 more than the present production, and he insisted there was an ample supply of labor to produce the maximum of the mines, which would take care of domestic needs and give a large surplus for export.

IMPORTANCE OF EXTENDING EXPORT TRADE

Mr. Crews stressed the importance of maintaining and expanding the export coal trade, declaring it would be unwise to abandon exports. He declared export trade could not be carried on under the pending bill as it would not permit American exports to make firm and obligatory contracts which foreign buyers desired, although the British operators could make unqualified contracts. He cited the Egyptian railroad and South America as fields for foreign exports. The bill would force spot coal on the market. He asserted that the United States was entitled to its world trade in coal, having the advantage over Great Britain in lower mine cost although Great Britain had the advantage of lower freight cost, her mines being close to tidewater.

Emphasizing the necessity of America not hampering her coal trade by legislative or administrative restrictions, Mr. Crews pointed out that Great Britain had not only removed war restrictions but had encouraged the export business to regain her coal trade. He urged that Congress be not influenced by conditions which are now disappearing, to pass legislation which it would not consider a year from now, as it might entail serious consequences. He deplored the fact that although we had the facilities America had never developed its export coal trade. America could compete with Great Britain in the trade and had been displacing British coal in South America.

Mr. Crews said there must be better relations between the coal, banking and shipping interests to develop foreign trade. Senator Walsh assured the witness that the committee was unanimously in favor of doing anything to increase the export coal trade, and had no purpose to restrict it.

The witness questioned the wisdom of giving authority to the Federal Trade Commission or any other body to determine what was an "emergency" to justify government control and referred to the criticism which had arisen from regulation by the Fuel Administration. "The time for government regulation has passed," said Mr. Crews. He said Congress, if it intended to take emergency control, should specifically declare in its legislation what constituted an emergency on which to base federal control and not leave it to an administrative body. "At any time of threatened coal shortage an attempt would be made to control prices," he declared. He said commissions had gone beyond what they were created for, naming particularly the Federal Trade Commission, and criticised that commission for being destructive instead of constructive.

"Do not judge the coal industry by the aftermath of the war," said Mr. Crews in conclusion. "Give it a chance to recover itself so that it can progress on the broadest and sanest lines. There is no reason to single out the coal industry for regulation. If let alone it will go forward and develop the export trade."

Mr. Crews emphasized the necessity of keeping hands off in view of the development in the bituminous coal industry of byproducts for use in the chemical industry.

Representative James W. Meade, of the Buffalo [N. Y.] district, complained to the committee of the deplorable situation with respect to coal supply and prices in Buffalo.

O. B. Hood, chief mechanical engineer of the Bureau of Mines, and George W. Elliott, of the District of Columbia, representing gas and electric public utilities, also testified.

George H. Cushing, general manager of the Wholesale Coal Association, made a general attack on the bill, urging its postponement for three weeks in order that it might be thoroughly considered by the trade. Senators Kenyon and La Follette did not desire to postpone it that long, saying it would defeat the bill, as the session closes March 4.

In the course of his testimony, Mr. Morrow made the following statements:

"Whenever an emergency arises which prevents consumers from securing sufficient supplies, it is fitting and right that some agency of the government ought to take action to see that coal is secured. If the movement of coal is not interfered with, there is no need to bother about price. It will take care of itself. When the switchmen's strike occurred, there was no law that enabled such action to be taken, but when the Transportation Act was passed you put on the statute books a law to meet such an emergency. The Interstate Commerce Commission did not see fit to exercise its authority under this act until the latter part of June. Even then the order was not effectively enforced and its proper effect was delayed. We can produce more coal than we need. The real difficulty was the exceptional combination of circumstances that grew out of the war. Such a situation never took place before. It has happened once in a hundred years. Nobody has reason to believe that it will happen again."

COLLECTION OF COAL DATA COMPARED TO CENSUS

Mr. Morrow said the coal trade would not object to giving figures as to the cost of production and sales, but objected to going further on the ground that it would revolutionize the conduct of government and industry. Senator Jones said the bill would require investigation by the government as to whether prices quoted by the operators were accurate. Senator Reed thought the government had as much right to get coal information as to take a census and it might apply to every industry to the public benefit. Mr. Morrow said there was no great objection to giving the information, although some regarded it as their private business and objected to government regulation.

Federal Trade Commissioner Thompson said he "presumed" the commission had power under section 6 to require cost data, which indicated a doubt in his mind as to its power. He said two courts had decided that the commission had not power to require the cost reports, but Senator Reed said the situation was different from a demand by Congress, adding "you were trying to get under a power."

A. W. Riley, of New York, special assistant to the Department of Justice, referred to his investigation of unreasonable prices for anthracite coal. He said anthracite high prices were not due exclusively, as the operators say, to the speculator, as coal had been sold in New York and New England from \$20 to \$25 a ton through selling agents of the operators, who knew the prices at which sold and to whom sold. He said he had found in most instances that the retailer was not getting such profits as would explain these high prices. Retailers were paying \$18 for coal and the investigation uncovered the method of disposing of the coal by the operator.

E. C. Hultman, Massachusetts Fuel Administrator, declared that New England had been robbed by high coal prices, and that the industry should be regulated by the government in the interest of reasonable prices and equitable distribution to the people.

PUBLIC HEARINGS WILL BE HELD by the Coal and Coke Committee of the railroads for Trunk Line Territory to consider the readjustment of rates on bituminous coal from origin points in Pennsylvania, West Virginia, Maryland and Ohio to New England consuming points and also from the anthracite fields of Pennsylvania to New England consuming points. These hearings, which are to be held at the request of carriers, will be in Room 401, 143 Liberty St., New York City, on Feb. 3, 1921, at 10:15 a.m.

Lloyd and Dodson Condemn Calder Bill

JOHN E. LLOYD, president of the National Retail Coal Merchants Association, has sent the following letter, dated Jan. 20, to Senator La Follette, chairman of the Senate Committee on Manufactures, to which the Calder Coal Control bill has been referred:

"As president of this association I wish to enter an earnest protest against Senate Bill 4828.

"The outcome of this class of legislation and the extreme powers permitted under this bill are the paramount issues. It brings out the entire question of government control so decisively that this should be frankly conceded.

"It is possible under this bill for the government to have to assume responsibility for the proper protection of the tremendous investments in the coal industry and for the conduct of the business in a way which will satisfy the consuming public.

"The coal industry, like most others, has been through an

abnormal period and owing to strikes and transportation conditions was slow in reaching the point where the supply was equal to the demand.

"This point has now been reached and it seems eminently fair to ask that the industry be given an opportunity to adjust itself *before any legislation is undertaken.*"

The following letter, from Alan C. Dodson, president of Weston Dodson & Co., Inc., dated Jan. 21, is addressed to consumers of coal:

"There is at present pending in Congress a bill of Senator Calder's for federal control of coal (S. 4828). We believe that federal control is destructive to business. The results of the Railroad Administration, and in fact of every business to which the government has put its hand, have been stagnation, failure and an increased cost to the public. A similar experiment is now to be tried on coal.

"Do you approve? If you do not, will you wire the Senators from your State and the Representatives from your district, and any other Congressman upon whom your opinion will have some influence, and urge the defeat of the Calder Coal Bill.

"The evidence against the coal industry presented in our daily press is, in most cases, unfounded and preposterous and when true, covers a few isolated cases.

"If federal control is assumed over the coal business initiative will be destroyed, incentive removed, and high cost and short supply will result. Your coal will cost you more than it ever has, just as your freight and passenger fares are costing you more today. The history of federal control makes this prediction certain of fulfillment.

"If the danger exists at all, as we believe it does, the necessity for your action is immediate."

Market Exchange for Coal Proposed for New York Trade

IN HIS report to the members of the Wholesale Coal Trade Association of New York, Inc., at the annual meeting held Jan. 18, Charles S. Allen, secretary, announced that a meeting of those interested would be called soon at which steps will be taken toward the formation of a coal exchange on the floor of which coal may be bought and sold by its members. Mr. Allen said that a feeling that such an institution should be formed has developed among many members of the coal trade and that it was desired to establish the exchange as an experiment for a few months and if it proves successful to continue it as a permanent institution, eventually locating it in a building occupied largely if not exclusively by coal concerns.

Mr. Allen's report reviewed the activities of the association as well as the activities of the coal trade in general, during the year 1920, not forgetting the work of the Department of Justice and the Calder committee. He reported the year as a very active one upon the part of those who have sought governmental interference with or control of the coal industry. Senator Calder, the author of a bill to control the coal industry, has undergone a decided change in his attitude in this respect from his first pronouncements on the subject calling for nationalization of the mines of the country.

In discussing the activities of the Department of Justice Mr. Allen lauds the work of William M. Spear, the local representative of the Department of Justice, charged with investigating transactions in bituminous coal.

"As an inevitable result of the participation of your representatives in the course followed by Mr. Spear in prosecuting certain members of the trade," continues Mr. Allen's report, "there has been a flareback and your secretary and general counsel, as well as others more intimately connected with the co-operation afforded to Mr. Spear, have been recipients of a not altogether unexpected attack accompanied by vilification and charges of almost every nature, but in this connection the conduct of your representatives is open to the fullest investigation by any interested member,

with a complete confidence of ability to satisfy anyone as to the propriety of every move undertaken."

Mr. Allen refers to the report of the Committee on Complaints of the Tidewater Coal Exchange, Inc., printed in *Coal Age* (Vol. 18, No. 27, Page 1344). He said the committee has been informed by the Executive Committee of the Exchange that steps have been taken to put into effect some of the suggestions made, particularly with respect to classification; that the matter of inspection was receiving the attention of the Executive Committee, and that the matter of accounting systems was in the hands of an efficiency committee, but that the Executive Committee did not feel that the major recommendations of the Committee on Complaints should be followed.

One of the matters on the way to being rectified, Mr. Allen says, is that of the requirement by the Pennsylvania R.R. of prepayment of freight charges in coal shipments, which it is felt is an unjust discrimination against the coal trade. It is believed there is a fair chance to have the Interstate Commerce Commission require a change in the company's rules in that respect.

The election of directors resulted in the following being chosen: W. A. Marshall, of W. A. Marshall & Co.; LeBaron S. Willard, of Willard, Sutherland & Co.; E. D. Enney, of William Cory-George Mann Corporation; Carl B. Wynkoop, of Cosgrove & Wynkoop Coal Co.; Henry M. Payne, of Andrade-Eyre, Inc.; William H. Macurda, of Garfield & Proctor Coal Co.; William H. Lewis, of M. A. Hanna & Co.; George M. Dexter, of Dexter & Carpenter; Charles A. Owen, of Imperial Coal Co.; Benjamin H. Warford, of Knickerbocker Coal Co. and Nat C. Ashcom, of B. Nicoll & Co.

The meeting, which was largely attended and was preceded by a luncheon at the Whitehall Club, was addressed by Gibbs L. Baker, general counsel of the association, who spoke of various matters including the Calder bill, and by C. Andrade, Jr., president of the association, who spoke on the exporting of coal.

Bids Submitted for Shipping Board Fuel Requirements; Reopened January 14, 1921

BALTIMORE

Total required, 240,000 gross tons

Company	Quantity, Tons	Price Bid			
		1	2	3	4
Burtner Coal Co.....	100,000	\$7.70	\$8.78	\$7.65	\$7.88
Geo. D. Harris & Co.....	48,000	.....	.....	6.35	.....
Ainesworth Coal & Iron Co.....	.....	8.03	8.98	7.88	8.08
Interstate Coal & Dock Co.....	240,000	.....	.....	6.993	.....
Penn. Fuel Co.....	240,000	7.39	9.93	9.93	.....
W. H. Radford & Co.....	240,000	.....	.....	6.595	.....
Imperial Coal Corp.....	60,000	7.55	8.35	7.25	7.60
Dexter Carpenter, Inc.....	100,000	6.49	7.44	.....	.....
Maryland Coal & Coke Co.....	120,000	.....	.....	6.81	.....
Quemahoning Coal Co.....	60,000	7.30	8.10	7.00	7.30
Somerset Coal Co.....	100,000	6.90	7.70	6.60	6.90
J. J. Dougherty.....	100,000	6.53	7.45	6.38	6.68
Hall Bros. & Co.....	240,000	.....	8.50	7.40	7.70
Hazy Creek Collieries, Inc.....	240,000	6.99	8.13	6.79	6.99
Equitable Fuel Co.....	120,000	.....	.....	8.25	.....
Stern Coal & Coke.....	240,000	.....	7.63	.....	.....
R. E. Boyer.....	240,000	.....	.....	7.25	.....
P. & S. Coal Co., Inc.....	240,000	7.20
Pa.-Va. Coal Corp.....	240,000	6.88

BERMUDA

Willard Sutherland & Co..	12,000	18.25
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BOSTON

Total required 30,000 gross tons

Maritime Coaling Co.....	30,000	13.25
Penn. Fuel Co.....	30,000	12.95
Stern Coal & Coke Co.....	30,000	.....	11.15	.....	.....

CHARLESTON

Total required, 50,000 gross tons

Industries Fuel Co.....	50,000	.....	.....	7.75	8.25
Jewett Biglow & Brooks...	50,000	.....	.....	7.90	.....
Taggart Coal Co.....	50,000	7.97	9.97	7.97	8.50
Ship-Rode Coal, Timber & Mfg. Co.....	50,000	7.70	8.65	7.25	8.20
Chas. R. Allen.....	50,000	9.05	.....	8.75	.....
Stern Coal & Coke Co.....	50,000	7.98	.....	.....	.....

HAMPTON ROADS

Ft. Dearborn Coal & Ex- port Co.....	72,000	.....	.....	9.00	.....
C. & O. Coal & Coke Co...	180,000	.....	.....	9.00	.....
Dexter Carpenter, Inc.....	100,000	7.94	.....	.....	.....
Dexter Carpenter, Inc.....	50,000	7.67	.....	.....	.....
Maryland Coal & Coke Co.....	180,000	.....	.....	7.90	.....
Lake & Export Coal Corp.	240,000	.....	.....	8.25	.....

JACKSONVILLE

Total required, 40,000 gross tons

Industries Fuel Co.....	40,000	.....	.....	7.85	8.45
Logan Coal & Supply Co..	40,000	9.25	10.10	8.30	9.74
Southern Coal Co.....	40,000	10.73	10.40	8.55	10.05
Jewett Biglow & Brooks...	40,000	.....	.....	8.25	.....
Ship-Rode Coal, Timber & Mfg. Co.....	40,000	8.05	9.00	7.60	8.55
Chas. R. Allen.....	40,000	9.15	.....	8.85	.....
Stern Coal & Coke Co.....	40,000	.....	.....	7.95	.....

SAVANNAH

Total required 40,000 gross tons

Industries Fuel Co.....	40,000	.....	.....	7.75	8.25
Jewett Biglow & Brooks...	40,000	.....	.....	7.90	.....
Taggart Coal Co.....	40,000	7.97	8.47	7.97	8.07
Ship-Rode Coal, Timber & Mfg. Co.....	40,000	7.86	8.80	7.40	8.35
Chas. R. Allen.....	40,000	8.87	.....	8.57	.....
Stern Coal & Coke Co.....	40,000	.....	.....	7.85	.....
Godley & Griffin.....	40,000	.....	9.50	.....	.....

NEW YORK

Total required, 900,000 gross tons

Company	Quantity, Tons	Price Bid			
		1	2	3	4
Riverside Coal Co.....	50,000	.....	.....	\$7.65	\$8.15
Seiler Coal Co., Inc.....	90,000	.....	.....	.....	7.50
Geo. D. Harris & Co.....	48,000	.....	.....	6.95	.....
Majestic Coal Co.....	25,000	.....	.....	.....	8.79
Majestic Coal Co.....	50,000	.....	.....	.....	8.21
Majestic Coal Co.....	50,000	.....	.....	.....	6.81
Ainesworth Coal & Iron Co.....	900,000	\$8.36	\$9.41	8.21	8.41
Willard Sutherland & Co..	10,000	.....	.....	.....	7.75
E. Russell Norton.....	200,000	.....	.....	.....	8.90
M. C. Mason & Co.....	180,000	.....	.....	.....	8.35
Commercial Coal Co.....	100,000	.....	8.35	.....	7.15
H. B. W. Haff.....	75,000	.....	.....	.....	8.75
Steamship Fuel Corp'n...	200,000	.....	.....	.....	9.31
Penn Fuel Co.....	450,000	.....	9.93	9.93	7.69
Penn Fuel Co.....	450,000	7.39	9.93	9.93	7.93
W. H. Radford & Co.....	360,000	.....	.....	7.40	.....
Imperial Coal Co.....	60,000	.....	9.85	.....	8.30
Shawnee Fuel Co.....	45,000	.....	.....	8.19	.....
Dexter Carpenter, Inc....	100,000	.....	.....	.....	7.39
Maryland Coal & Coke Co.	120,000	.....	.....	7.40	.....
Hazy Creek Collieries, Inc.....	900,000	7.63	8.88	7.43	7.73
Nonpareil Fuel Corp.....	240,000	.....	8.65	.....	7.51
Stern Coal & Coke Co.....	900,000	.....	8.68	.....	.....
Pa.-Va. Coal Corp.....	240,000	7.25
W. M. Bollenback.....	180,000	7.47

NEWPORT NEWS

Hassler & Co.....	420,000	8.00
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NORFOLK

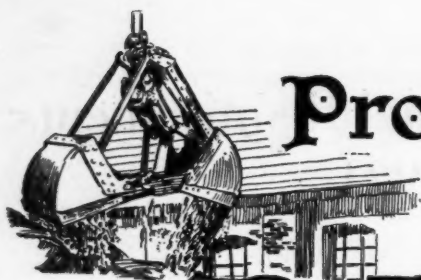
Total required, 480,000 gross tons

Central Pocahontas Coal Co.....	180,000	7.80
Interstate Coal & Dock Co.....	480,000	.....	.....	7.345	.....
Penn Fuel Co.....	240,000	8.23	9.93	9.93	.....
Penn Fuel Co.....	240,000	8.95	9.93	9.93	.....
W. C. Atwater & Co.....	240,000	.....	.....	8.00	.....
Hassler & Co.....	420,000	.....	.....	8.25	.....
Hazy Creek Collieries, Inc.....	480,000	8.28	9.78	7.98	8.48
R. E. Boyer.....	200,000	.....	.....	7.75	.....
P. & S. Coal Co., Inc.....	200,000	.....	.....	7.70	.....
Pa.-Va. Coal Corp.....	250,000	.....	.....	7.75	.....

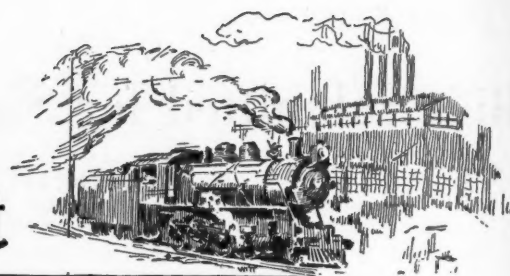
PHILADELPHIA

Total required 180,000 gross tons

Burtner Coal Co.....	80,000	7.70	8.78	7.65	7.88
Geo. D. Harris & Co.....	48,000	.....	.....	6.43	.....
Ainesworth Coal & Iron Co.	180,000	8.03	8.98	7.88	8.08
H. B. W. Haff.....	25,000	.....	9.25	.....	.....
Interstate Coal & Dock Co.....	150,000	.....	.....	7.243	.....
Penn Fuel Co.....	180,000	7.39	9.93	9.93	.....
W. M. Bollenback.....	100,000	.....	.....	7.29	.....
W. M. Bollenback.....	80,000	.....	.....	7.29	.....
Imperial Coal Corp.....	60,000	7.65	8.45	7.30	7.60
Shawnee Fuel Co.....	45,000	.....	.....	7.67	.....
M. B. Courtright Co.....	180,000	7.65	8.43	7.35	7.60
Dexter Carpenter, Inc....	100,000	6.57	7.52	.....	.....
Maryland Coal & Coke Co.....	120,000	.....	.....	6.88	.....
Geo. Patchell & Co.....	180,000	7.50	8.58	7.50	7.75
Hall Bros. & Co.....	180,000	.....	8.55	7.45	7.65
Hazy Creek Collieries....	180,000	7.09	8.24	6.99	7.29
Stern Coal & Coke.....	180,000	.....	7.73	.....	.....
Pa.-Va. Coal Corp.....	240,000	.....	.....	6.95	.....



Production and the Market



Weekly Review

WINTER weather is one thing that can usually be counted on to put life in the coal trade, and unless there is some winter weather, particularly in the Middle West where bituminous is largely used for domestic use, the coal business can join the woolen business and some other lines of trade in hibernating the rest of the winter. From a peak of nearly 13,000,000 tons a week in November the production of bituminous coal has been slipping down-grade continuously until in the second week of January it registers less than 10,000,000 tons. The cause of the decline is entirely lack of market. Car shortage has practically ceased to be a factor. Mines are operating about four days a week on the average over the country, some fields as in the far West reporting as low as two and a half to three days, and others as Pocahontas and in some parts of the Pittsburgh district reporting around 90 per cent full time operations. Consumers are taking less than they are burning. In other words, the country is gradually eating into its stockpile. This is probably as it should be in view of the mildness of the winter but industries that have any use for coal at all will do well to consider the advisability of leaving the high-priced stockpile alone and filling in current consumption with spot purchases at bargain counter prices. Spot prices today on nearly every coal are well

below what the same coal can be secured for on contract for future delivery, either for a few months hence or for the ensuing year.

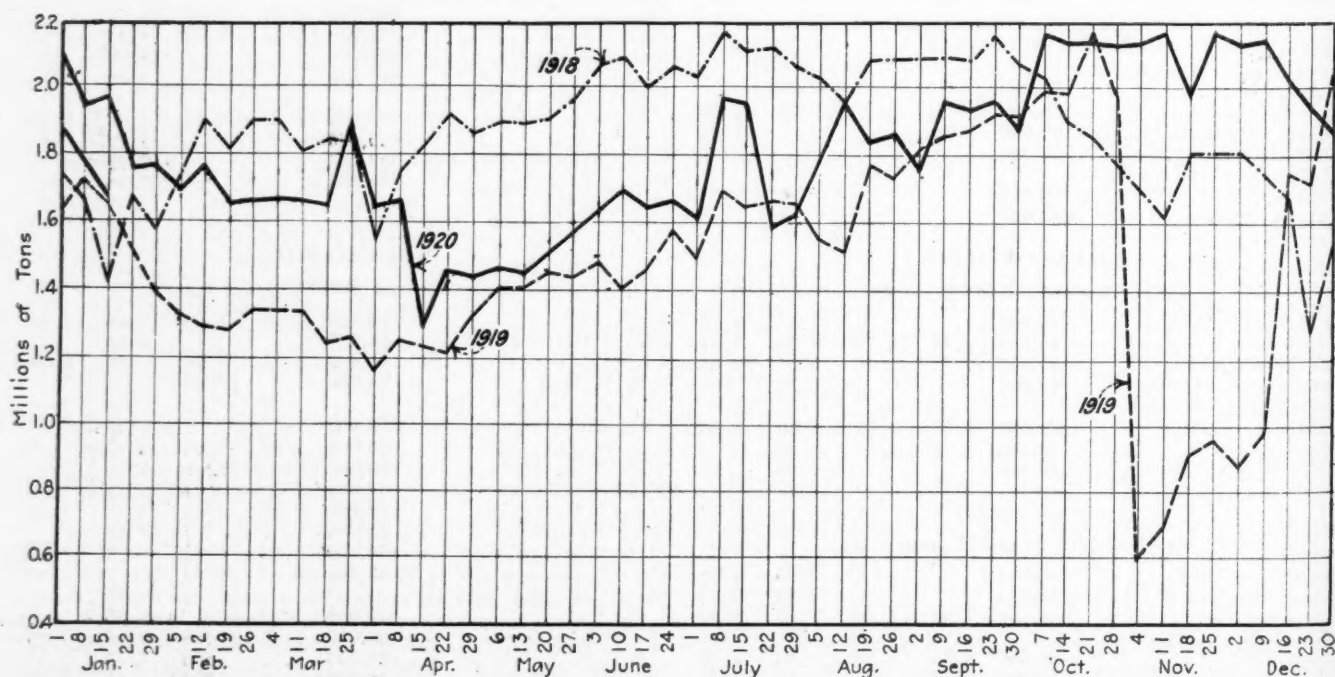
The seller of coal is carefully watching the industrial situation and he sees unmistakable signs of the gradual quickening of business. The coal man is not committing himself on future business except at a figure that he knows will net him a profit.

Anthracite production continues to gain and there is no reason whatsoever for anyone to have difficulty in securing whatever is necessary. Independents generally are not cutting their price below \$10 and the companies are holding firm their circular around \$8 for the larger prepared sizes. The only possibility of a decrease in the price of anthracite as delivered to the householder, can come through a reduction by the retail dealer, as mine costs and his freight rate are fixed for the rest of the winter. Some retailers may do well to forego the 12 per cent margin found in the difference between purchasing gross tons and selling net tons in order to entice business this spring.

BITUMINOUS

Production continued to decline during the week ended Jan. 15. According to the Geological Survey, the total output is estimated at 9,937,000 net tons, a decrease of 806,000 tons when compared with the preceding week. The

Daily Average Production of Bituminous Coal*

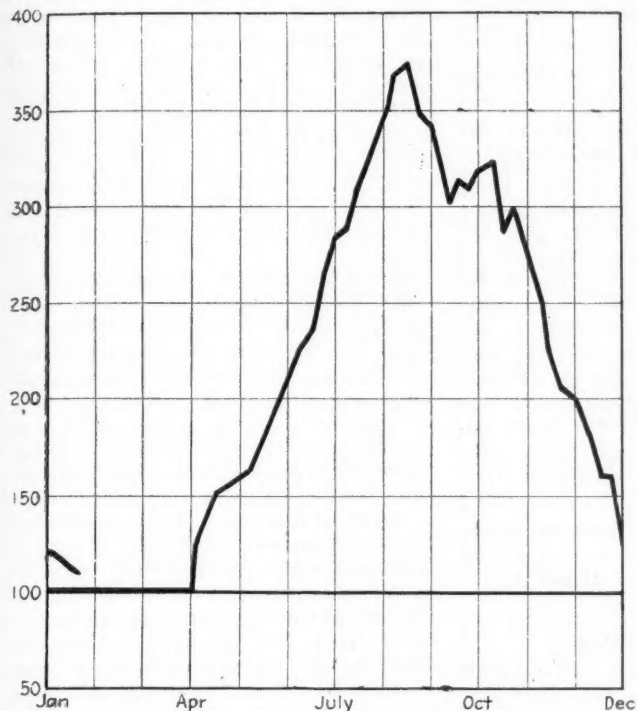


*From weekly report of Geological Survey.

daily rate of production, at present 1,656,000 tons, has been steadily lowered since mid-December. Loadings on Monday and Tuesday of the next period (Jan. 16-22) amounted to 60,100 cars, indicating a further decrease in production.

COAL AGE SPOT PRICE INDEX DECLINES 19 PER CENT

The *Coal Age* index figure for spot prices of soft coal, which stood at 128 at the end of 1920, has declined to 109 the third week in January. In other words, spot prices of bituminous coal are now but 9 per cent above the average government price established during the war, although costs of production are now at least 40 per cent greater than when the government prices were established. The trend is shown in the appended chart:



Relative spot prices of bituminous coal in United States 1920-1921. Weekly spot prices on bituminous coal have been reduced to compare with the average government price taken as 100. The result is shown in this curve as an index number of spot prices.

The far-seeing consumer is gradually availing himself of the extremely attractive bargains now offered. Good coal is easily purchased well under the \$3 mark, f.o.b. mines, and distress coal is readily located at considerably less. Contract inquiries from the buyer are now appearing but the producer is wary of taking on future obligations and the few sales that have been closed show a differential of \$1@1.50 above the recognized spot market of today. The following table shows the trend of the spot market (mine-run basis, net tons, f.o.b. mines). Quotations are mainly sellers' figures and represent prices below which the producer has refused to go. Following the period of high prices, operators are in good position to weather the present low-price storm and actual sales at these figures are not heavy:

	Nov., 1919*	May, 1920	Aug. 5, 1920	Jan. 13, 1921	Jan. 20, 1921	Jan. 27, 1921†
Pittsburgh steam	\$2.35	\$4.00	\$10.00	\$2.50	\$2.50	\$2.50
Pittsburgh screened gas..	2.35	4.50	12.00	3.15	3.50	3.25
Hocking	2.50	4.75	9.00	2.50	2.25	2.25
Franklin, Ill.	2.35	3.75	6.50	3.00	2.85	2.75
Indiana, 4th vein.	2.35	3.40	7.50	2.75	2.50	2.50
Eastern Ohio, No. 8.	2.35	4.50	10.50	2.75	2.75	2.60
Fairmont	2.50	6.75	13.50	2.20	2.15	2.15
Kanawha	2.60	6.75	14.00	2.70	2.70	2.50
S. E. Kentucky.	3.00	6.00	10.50	2.80	2.80	2.70
Western Kentucky.	2.35	3.50	5.25	2.60	2.25	2.35
Clearfield	2.95	6.25	12.00	3.00	2.85	2.85
Cambria and Somerset.	2.95	6.75	13.50	3.60	3.60	3.60
New River	2.70					
Pocahontas	2.35	6.50	14.00	4.50	4.00	3.60

*Government prices.

†Advance over the previous week shown in heavy type, declines in italics.

Shipments to New England via the five rail gateways, declined sharply during the week ended Jan. 15, being estimated by the Geological Survey at 4,030 cars.

Estimates of Production

FROM THE WEEKLY REPORT OF THE GEOLOGICAL SURVEY
(NET TONS)

BITUMINOUS COAL

Total bituminous, including coal coked

	1920-1921		1919-1920	
	Week	Coal Year to Date	Week	Coal Year to Date d
Jan. 1a.....	9,633,000	411,573,000	11,062,000	353,581,000
Daily average b. . .	1,860,000	1,782,000	2,087,000	1,530,000
Jan. 8a.....	10,743,000	422,316,000	11,323,000	364,904,000
Daily average.....	1,790,000	1,781,000	1,887,000	1,538,000
Jan. 15c.....	9,937,000	432,253,000	11,507,000	376,411,000
Daily average.....	1,656,000	1,780,000	1,918,000	1,550,000

() Revised from last report. (') Counting New Year's day, 1920, as 0.3 of a working day; in 1921 as 0.17 of a working day. (c) Subject to revision.

ANTHRACITE

	1921		1920	
	Week	Coal Year to Date	Week	Coal Year to Date a
Jan. 1b.....	1,582,000	68,126,000	1,512,000	70,220,000
Jan. 8.....	1,793,000	69,919,000	1,846,000	72,065,000
Jan. 15.....	1,895,000	71,814,000	1,847,000	73,913,000

(a) Less 2 days' production during first week of April, to equalize number of working days covered for the two years. (b) Five-day week.

BEEHIVE COKE

United States Total

	Week Ended		1921	1920c
	Jan. 15a 1921	Jan. 8b 1921	Jan. 17 1920 to Date	to Date
260,000	270,000	445,000	531,000	873,000

(a) Subject to revision. (b) Revised from last report. (c) Less two days' production during New Year's week to equalize number of days covered for the two years.

TIDEWATER SHIPMENTS

Movement to Tide fell off heavily during the week ended Jan. 16, and was even less than during New Year's week. The Geological Survey shows that 841,000 net tons were the week's dumpings, shipments to both New England and overseas declining considerably. The export trade is extremely sluggish, scarcely any new business being closed. Tonnage shipped to Tide was destined as follows:

Destination	New York	Phila- delphia	Baltimore	Hampton Roads	Charleston	Total
Coastwise to New England.....	34,000	16,000	11,000	70,000	.....	131,000
Exports.....	.....	11,000	50,000	177,000	6,000	244,000
Bunker.....	116,000	5,000	10,000	63,000	2,000	196,000
Inside capes.....	.....	63,000	19,000	5,000	.....	87,000
Other tonnage.....	162,000	.....	.....	19,000	3,000	184,000
Total.....	313,000	94,000	89,000	334,000	11,000	841,000

ANTHRACITE

Production continued to recover from the holiday depression and is again approaching the two million ton mark. The Geological Survey reports the output for the week ended Jan. 15 at 1,895,000 net tons, an increase of 102,000 tons or 5.7 per cent as compared with the preceding week.

The mild winter has gradually lessened the demand and while all domestic sizes are still easily moved the independents are having increasing difficulty in obtaining premium prices. Their quotations reflect this condition, \$9@10 being quoted in the New York market, while offerings to New England are being made at \$9.25.

COKE

Beehive production declined still further during the week ended Jan. 15, when 260,000 net tons were reported by the Geological Survey. Compared with the preceding week this is a decrease of 10,000 tons. The general policy of coke operators to keep production within the limits of the extremely weak demand has virtually kept "no bills" at a minimum. Connellsville quotations are unchanged, foundry \$6.50@7 and furnace \$5@5.50. Contracting so far represents but a fraction of the quantity usually closed at this time of the year.

Reports From the Market Centers

New England

BOSTON

Drifting Market—No Spot Demand Worth Mention—No Sign of Change Industrially—Forced Sales Frequent at Tidewater—Anthracite Demand Relaxing.

Bituminous—The market continues its aimless trend and there are no significant developments. Quotations are in most cases on as low a level as operators feel they can afford to sell and about the only encouraging reports from the mining regions are of operations shut down. In time this should check the downward tendency of prices which in the long run can accomplish no good for anybody.

What is greatly needed is more production of all kinds of goods, but to start up the mills the retail tradesmen must be in position to buy. In a few special lines orders are just beginning to come in, but only in slight volume. It will take quite a period of coal burning before consumers will again enter the market, for all over this territory the reserves are greater than they have been since the fall of 1918. It is not uncommon to see large plants where there is now coal in storage enough to last an even 6 months. The average reserve pile is from 120 to 150 days.

Spot inquiry is therefore extremely light. Retail dealers and a few small plants where it is not customary to store more than a few weeks' supply are the only buyers in evidence. Water power was never so plentiful as the past few months in New England, and large hydro-electric stations that use coal only for auxiliary power have large storage piles that remain almost untouched.

At New York, Philadelphia, and Baltimore distress coal is being sold from day to day at extremely low prices. Several shippers have been embargoed because of inability to move coal standing at the piers, and more than one contract customer who finds it inconvenient now to accept delivery is resting his case on the poor showing the shipper made during last spring and summer. The result is congestion at the piers so far as the carriers will permit, followed by forced sales, in some cases very little above the freight.

The smokeless shippers are facing almost the dulllest market they have known. At Newport News one day recently there was but one boat waiting for a coastwise cargo, and at the terminals the situation was almost as discouraging. Several groups of mines in the Pocahontas district are to work only three days per week beginning Jan.

24 and this practice will doubtless spread through other fields.

Current quotations on bituminous at wholesale range about as follows:

	Clearfields	Cambrias and Somersets
F.o.b. mines, per net ton.....	\$2.25@\$.35	\$3.00@\$.45
F.o.b. Philadelphia, per gross ton.....	5.18@ 6.60	6.00@ 7.40
F.o.b. New York, per gross ton.....	5.65@ 7.10	6.50@ 7.85

Pocahontas and New River are quoted at \$6.50@\$.75 per gross ton f.o.b. vessel at Hampton Roads.

Anthracite—A few days of seasonable weather revived anxiety over the very light stocks of domestic sizes in most communities, but moderate weather has again allayed apprehension. Retail demand generally is relaxing, and while shipments have not yet improved in any marked degree they are now more closely confined to the old-line shippers. Less and less "independent" coal is being purchased, and prices for that product have eased off very materially.

Tidewater—East

PHILADELPHIA

Cold Weather Causes Anthracite Rush—New Anthracite Tax Law Proposed—Steam Sizes Hard to Move—Bituminous Trade Light—Bottom Prices Reached—High-Grades Tend to Increase—Consumers Seek Contract Information.

Anthracite—A brief taste of winter during the past week caused the first real rush of the season. Dealers con-

tinue to look for a break in the market, yet with February almost here and coal still scarce they are beginning to conjecture just where all the coal can be going. Surely, distribution was never better carried out, not even during the war. While the large sizes are far from being easy to get, it is a fact that more independent shippers than ever have recently been offering their premium coal in this market. Quotations of \$10.50@\$.11 have been frequent for egg, stove and nut, but very few sales made.

Dealers are also interested in the new tax suggestion as made by the Governor, proposing a levy of 8c. a ton on anthracite. Many of the dealers are still without the refund of the tax as charged by the companies on the former tax act which was declared unconstitutional. There is a feeling prevalent that the new act will go through without any opposition from the coal people.

Shipments recently have been moderate, about on an average with arrivals for the entire season from Dec. 1. There can be no denial that conditions are changing and with the mild weather prevailing heavier shipments can soon be expected. Some independents are becoming so burdened with buckwheat that they are asking the retail trade to take a car of this size with the promise of a car of egg, stove or nut, and sales have been made on this basis.

Steam sizes are becoming heavier each day and it will soon be difficult for the companies to place production on the market. As yet it is not believed that any of the operators have been compelled to store buckwheat, but some rice and barley has been going into the storage yards recently.

Bituminous—There is a growing feeling that bottom prices have been reached. This is shown by the rather varying quotations by different shippers on the same grades of coal. Pool 1 has been offered \$3.75@\$.425 while Pool 9

Operating Conditions at Indiana Coal Mines During Year Ending Dec. 31, 1920

PREPARED BY JONAS WAFFLE, SECRETARY INDIANA COAL TRADE BUREAU

Railroads on Which Mines Are Located	District	No. of Mines	Tons Produced	Full Time Capacity (Tons)	Tons Lost and Causes Thereof				
					Total all Causes	Car Shortage	Labor Trouble	Mine Disability	No Market
Big Four.....	Terre Haute	6	900,294	1,473,947	573,653	459,442	85,264	28,947	.....
B. & O. S. W....	Vincennes...	2	354,328	544,380	190,052	108,237	67,267	14,546	.....
E. S. & N.....	Clinton...	31	4,032,971	6,013,970	1,980,999	1,238,554	597,158	130,143	15,144
C. & E. I.....	Sullivan ²	18	2,097,353	3,430,709	1,333,356	973,231	197,775	133,777	28,443
	Total....	49	6,130,324	9,444,679	3,314,355	2,211,785	794,933	263,920	43,717
C. I. & W.....	Dana.....	1	99,917	112,501	12,584	1,987	9,743	854	.....
Cent. Ind.....	Brazil.....	1	57,343	61,950	4,607	658	3,039	910	.....
	Clinton...	15	2,469,478	3,818,423	1,348,945	995,720	277,926	54,566	20,733
C. T. H. & S. E.	Linton...	27	2,748,079	4,724,166	1,976,087	1,401,810	338,936	170,206	65,135
	Total....	42	5,217,557	8,542,589	3,325,032	2,397,530	616,862	224,772	85,868
E. I. & T. H....	Clay City	15	1,164,931	2,384,452	1,219,521	933,747	157,653	118,942	9,129
	Petersburg	2	115,479	140,944	25,465	13,503	4,168	4,870	2,974
E. & E.....	Evansville...	4	267,125	388,916	121,791	79,550	24,860	12,914	4,467
E. S. & N.....	Evansville...	4	267,125	388,916	121,791	79,550	24,860	12,914	4,467
Ill. Cent.....	Linton...	6	750,112	1,245,701	495,589	353,763	78,332	52,188	11,306
Monon.....	Linton ³	21	2,329,689	3,873,073	1,543,384	809,007	411,446	306,398	16,533
	Main Line ⁴	22	2,245,963	4,099,979	1,854,016	1,286,612	249,509	283,640	34,555
P.C.C. & St. L.	Vincennes ⁵	21	4,296,049	8,497,053	4,201,004	2,698,983	785,984	670,457	45,580
	Total....	43	6,542,012	12,597,032	6,055,020	3,985,595	1,035,493	954,097	79,835
	Ayrshire.....	10	676,796	1,369,899	693,103	460,816	72,153	142,091	18,043
Southern.....	Boonville ⁶	10	713,661	1,286,431	572,770	428,039	77,931	60,732	6,068
	Total....	20	1,390,457	2,656,330	1,265,873	888,855	150,084	202,823	24,111

¹ Includes all mines South of Terre Haute. ² Two mines served by two railroads. ³ Four mines served by two railroads. ⁴ Includes all mines on St. Louis and Michigan divisions. ⁵ Includes all mines on Vincennes division and Dugger Branch. ⁶ One mine served by two railroads.

has been quoted \$3.25@3.75. Probably Pool 11 has shown the greatest variation of all, quotations being \$2.90@3.50. On Pool 11 the ruling prices have been \$2.50@2.75.

If anything, sales this week have been lighter and as a result 50 per cent of the mines are idle. Shippers are taking the stand that they cannot sell at lower prices. In the higher grade coals there is a feeling that the consumer is making a mistake in not buying, for some shippers report that they already have more orders for the good coals than they can fill promptly. There is no doubt that with the slackening of production beyond a certain point prices are bound to rise.

There is much inquiry as to contract prices. A certain portion of the consuming trade is restive at the contract prices quoted on the highest grade fuels and is feeling around with the idea of economizing by using a cheaper fuel. Under these conditions it is not so hard for a buyer who has been using a coal of Pool 9 grade to be convinced that he can do very well by substituting a Pool 10 coal if he can get a contract, and that is just what many of them are, trying to do.

NEW YORK

Independent Coals Show Further Settling—Buyers not Stocking—Steam Sizes Easy with Quotations Low—Bituminous Market Quiet—Coal Accumulates—Quotations Low—Increasing Contract Inquiries.

Anthracite—With buyers hesitating to take independent coal unless the prices quoted are within reason, the supply of domestic sizes is considerably easier than a week back. Company coal is also in better supply and the entire situation is gradually getting back to normal.

Dealers are not having much difficulty in meeting demands made upon them although a couple of days last week when the mercury hit a low mark some of them were made to hustle to fill their orders. However, most dealers have some coal in their bins, while others located in Brooklyn have been advertising that they have coal to sell.

Quotations for the various sizes of independent coals have been as low as \$9 for egg up to \$10 for the other sizes. An occasional higher quotation is heard. Pea coal is being shipped promptly and has become so plentiful that quotations range \$7@7.50.

Steam sizes are plentiful and large tonnages are being stocked by the companies. Some shippers are trying to reduce their supplies by selling these coals in conjunction with the domestic sizes. Some of the poorer grades of buckwheat were quoted at \$3.25 with better grades 25c@50c higher. Rice was quoted \$2.50@3, depending on quality, while barley was quoted at \$1 up.

Bituminous—Although the market at present is almost at a standstill some dealers believe they see a ray of sunshine and claim that the worst is over.

Many operators, unwilling to sell

their coal at present prices, have closed their mines. The miners do not take kindly to their idleness and are willing in most cases to work with the elimination of the bonus given them by many operators.

There have been many inquiries regarding contracts but as one dealer put it—"That's about as far as they have gone." The local docks are filled with coal. There has been no demand and some shippers have taken to loading boats in order to save railroad demurrage charges.

Many and varied have been the quotations during the past week. An occasional one has been below the cost of mining but the following is a fair range for the various pools at the mines: Pool 9, \$3.15@3.35; Pool 10, \$2.60@3; Pool 11, \$2.25@2.60; Pool 71, \$3.25@3.75 and Pool 34, \$2@2.50. In this harbor f.o.b. quotations ranged about as follows: Pools 1 and 71, \$6@6.75; Pool 9, \$5.75@6.25; Pool 10, \$5.25@5.75 and Pool 11, \$5@5.25.

BALTIMORE

More Mines Refusing to Operate at Loss—Prices Seem at Bedrock—Export Situation at Low Ebb—Hard Coal Receipts Fall.

Bituminous—The past week has seen the closing down of more mining operations. Producers are apparently determined to close in each case when the return on sales gets below the production costs. There is not likely to be seen here in the present period of depression the old line of selling of coal at cost under the hope that organization can be maintained and the money made again with a rising market. The cost of overhead has increased to such an extent that it prohibits such a course.

With the low prices and end of the speculative market too are passing practically all of those temporary agencies created by the opportunity of getting a cut of the melon. Demand for both gas and steam coal is very light just now both on home and export accounts. The export movement slowed off even more the past week.

The movement for the first three weeks of the month will not run much more than 130,000 tons, if it reaches that figure. The number of vessels awaiting coal has again been reduced, and reports from foreign sources do not give much encouragement of heavy business, pending some move to re-establish a better basis of credits.

Because of the light trading car supply has now run at 100 per cent ever since the Christmas holidays. Daily loadings on the B. & O. are now, however, only between 2,000 and 2,500 cars, or fully 1,000 below the level of shipment daily from the mines just before the holidays. The pier dumpings are around 200 cars a day.

Anthracite—Hard coal receipts have fallen off heavily. The shipments for January now promise to be only a little in excess of half of the December

movement. Despite this there is a pretty good supply in yards here, as shown by a recent review of the situation. The few days of really cold weather was succeeded by a new spring-like spell.

BUFFALO

Bituminous not Improving—Too Much Coal Everywhere—Canadian Market Worse Than Ours—Anthracite Supply Gaining.

Bituminous—Shippers find no increase in the demand. So far no factory resumption of account has been reported and when that does take place it will be sometime before buying will need to be brisk. Consumers may accept what they call bargains, but they will hardly do that now, which is an indication that they have no further storage capacity.

Salesmen back from Canada report that the industrial suspension there is rather more general than here. Collections are decidedly poor. It all goes to show that whatever has gone wrong with our industries is a sort of matter of course. The local trade has given up looking for a spring revival of activity. Business will drag along for awhile yet, for people will wait and watch the European situation, which is by no means promising.

Mines are all running as slowly as possible and a good many are shut down. Wages are pretty generally back to the union scale and even with that much of the coal produced is sold at a loss.

Prices do not run above \$4 for Youghiogheny gas, \$3.50 for Pittsburgh and No. 8 three-quarter, \$3 for all mine run and \$2.50 for slack, and often go below these figures. For Buffalo delivery add \$2.36 from Allegheny Valley and \$2.51 from other districts.

Anthracite—Coal is being distributed at a good rate, though there will be complaint of shortage till everybody is supplied for the winter. The margin of coal over actual needs has been small, allowing for the fact that many large consumers, such as churches, were fully supplied last summer. There is where the mistake was made, though retailers say it was done at a time when the demand was slack.

The situation is also shown by a report of a city jobber that he had lately refused to pay a premium of about \$2 on some independent anthracite that was offered. If he had not been doubtful about being able to sell the coal he would have taken it.

At the same time the mining situation is not as good as it was. Quite a good many men are out, mostly on account of disputes over employment of non-union men, and but for the fact that business generally is poor and many men are idle the situation might develop into something serious. As it is, the output has been affected materially. Operators complain that the law forbidding the putting on of green men keeps them short of miners more than is good for the business.

Coke—Demand is light, for the furnaces are down or running at a slow rate. Jobbers say that there would be no coke market locally but for the fact that so many ovens are idle. They think the shutting down of the ovens was a trifle overdone, so that contracts are not always quite filled. Prices rule at \$7.25 for 72-hour Connellsville foundry, \$5.25 for 48-hour furnace and \$5 for stock. Domestic sizes are \$7 for furnace, with next to no market for smaller sizes.

Northwest

MINNEAPOLIS

Mild Weather Continues—Market Extremely Inactive—Dock Prices Dropping—All-Rail Sales Curtailed.

The coal trade is entitled to a suspicion that some enemy has worked a Voodoo "conjer" upon it for the present season. There has been nothing but trouble, work without accomplishment, and finally failure and disappointment for the end. During the past week, there was a touch of wintry weather. Even a few days of this would have made a marked difference in coal consumption and buying. But it was not to be. After a day, the thermometer picked up to a fairly mild position which did not call for heavy consumption.

And buying of coal this winter is the one thing above others which all concerned simply will not do—until they have to. There has been hardly a time since navigation closed when there was any really urgent need of rushing orders for coal. Every contingency which may usually be counted upon to augment coal buying failed. There is usually some traffic interruption due to severe snow storms. Train service was probably never better during an entire winter. It is almost unknown for a winter to pass without a few days of sub-zero weather, a week and sometimes several weeks together. But this winter has hardly had two mornings in succession when the thermometer was below zero.

As a result of this series of exceptions, the trade with even moderate stock on hand, is wondering if it will be able to get through the season and clean up close. Country retailers are holding back from ordering any more coal. They are seeking to sell what they have, even though it be a different grade from that which the demand seeks, before they will stock further.

The wholesaler would do likewise if he could. But the dock trade has to stock during mild weather and take the chance that the winter will clean his stocks. In the language of the day the winter is more likely to "clean" him than his stocks. Those buying all-rail are playing exceedingly safe. There may be business ahead calling for considerable coal, but they are holding

their fire until the theoretical whites of the eyes on the other side are available.

Dock managers are growing cross-eyed as they keep one eye on the tonnage remaining on the docks and the other upon the small amount moving out. The stocks are holding out like the widow's meal and the oil of Bible time. It begins to look as though there was a surplus in sight on the docks already, although there still remain three months of coal consumption at the least. They are still hoping that they will clean up close, and have a chance to start the new season on the basis of new values. But some of them are quite fearful that this will be denied them, in view of the reluctant way that coal has moved all winter. With spring approaching they can see no chance for any improvement.

Eastern soft coal has succumbed in price, in the quotations of a number of companies. The high figures of \$13@-\$14 for Hocking have dropped to around \$11@-\$11.50 and some of the lower figures have taken a drop of 40c.@65c.

MILWAUKEE

Weather Conditions Rule the Market—All Coal in Good Supply—Prices Unchanged.

The coal market is quiet at present, with a demand which fluctuates with weather conditions. All concern as to the sufficiency of the fuel supply has subsided.

Anthracite and Pocahontas are readily obtainable and there is more soft coal on the docks than the owners care to see. Coke piles at the byproduct plants are also increasing rather than decreasing in size. Prices on both coal and coke remain firm, however. Illinois coal is coming in daily, but the market for it is slow. The City is buying in the open market because of inability to secure bids on a future supply.

Inland West

CLEVELAND

Extreme Dullness Continues—Steam Slack Sold As Low As \$2—Pocahontas Also Lower—Early Lake Movement Seen

Bituminous—An almost total lack of interest in contract negotiations usually taken up at this time of the year characterizes the trade in northern Ohio. In addition, continued inactivity in the spot market makes for a condition of extreme dullness.

Closing of mines and extension of part-time operations is reported in the Hocking Valley district. Some No. 8 mines are also curtailing operations because of the light demand.

Another brief period of cold weather temporarily increased the retail domestic demands but dealers were able to fill all orders without difficulty. A

much better gas supply in Cleveland than last year is also cutting down present domestic requirements.

Three-quarter inch steam was sold at eastern Ohio mines this week at \$3, while some slack went as low as \$2. Mine run is quoted \$2.50@-\$3 and steam lump \$2.75@-\$3.50. West Virginia splint is obtainable \$4.25@-\$4.75.

Plenty of cars are now available at the mines. Operators are anxious to ship to Lake ports, fearing that increased business activity in the coming summer may divert supplies which could now be piled up. However, only one contract of 50,000 tons has thus far been reported closed. A few boats have started loading for the coming season.

Anthracite and Pocahontas—The demand, while not as heavy as some weeks ago, nevertheless continues greater than the supply. Retailers, in most cases take orders only for indefinite delivery. Reports are heard of spot Pocahontas having been bought recently as low as \$3.50 at the mines. Retail prices continue unchanged, however.

Bituminous coal receipts for the week ended Jan. 15 were: industrial 1,925 cars, retail 500 cars, which is an increase of some 600 cars over the previous week.

Following are retail prices per net ton delivered in Cleveland:

Anthracite—Egg, grate, chestnut and stove, \$15.45.
Pocahontas—Shoveled lump, \$11.90; mine run, \$11.
Domestic Bituminous—West Virginia splint, \$11.75;
No. 8 Pittsburgh, \$9.30; Cannel lump, \$15.75.
Steam Coal—No. 6 and No. 8 slack \$7.50; No. 6 and No. 8 mine run, \$9; No. 8 1-in. lump, \$8.90.

MIDWEST REVIEW

Industrial Situation More Encouraging—Production Limited to Actual Orders—Some Contract Negotiations.

There is no question over the fact that this winter has proved, so far, a very unfortunate one for all branches of the coal industry. After a very brief spell of seasonable weather a few days ago, the mercury mounted to spring heights and what little demand there was for domestic died a hasty death.

A first hand inquiry in the industrial situation makes one feel a little better. Factories that have been down for the last two months, or weeks, are now resuming operations on a limited scale. This resumption is especially marked among the industries producing food-stuffs, for instance, milk condensaries, flour mills, etc. It is also true that a number of the larger cement plants have had the hardihood to open and start in at the rate of one or two days a week.

While the general situation is very far from normal, nevertheless, there has been considerable improvement during the last ten days. The buying public, or perhaps it would be better to say the purchasing agents of the big industries have at last come to the conclusion that it is an advantageous time to make an endeavor toward getting contract figures on their requirements. Some

operators are willing to make contracts, but as a general rule, most operators have tried to avoid the issue until a little later on in the hope that conditions will improve rapidly once they are on the mend. We have heard of a great many inquiries for contract prices but we have heard of very few contracts that have been closed, as it has been proved that if an operator is willing to make a contract at this time, his price is anywhere from one dollar to a dollar and a half over the current market.

Slowly but surely the coal trade in the Middle West is adapting itself to the changed conditions, and within the course of another month or so it is expected the coal market will be in a fairly healthy and settled state. Operators have ceased taking chances and are no longer loading coal unless they have an order on file for it. This is a very wise procedure and could well be followed by operators in Kentucky and West Virginia, who are flooding the western markets with coal on consignment.

The market cannot go any lower than it is today and in our opinion, the wise purchasing agent who has an immediate use for coal, or can conveniently store some, will doubtless purchase heavily. Current prices are as follows:

Southern Illinois (Franklin, Saline and Williamson Counties):		
Prepared sizes.....	\$3.50@	\$4.15
Mine run.....	2.25@	3.25
Screenings.....	1.85@	2.50
Springfield District (Central Illinois):		
Prepared sizes.....	2.75@	3.75
Mine run.....	2.00@	2.50
Screenings.....	1.00@	2.15
Northern Illinois:		
Prepared sizes.....	4.00@	4.25
Mine run.....	3.00@	3.50
Screenings (washed).....	2.50@	3.00
Indiana (Clinton and Linton, Fourth Vein):		
Prepared sizes.....	3.15@	4.00
Mine run.....	2.25@	2.75
Screenings.....	1.75@	2.50
Indiana (Knox County, Fifth Vein):		
Prepared sizes.....	3.10@	4.00
Mine run.....	2.00@	2.75
Screenings.....	1.00@	2.25
Pocahontas and New River:		
Prepared sizes.....	\$4.00@	\$5.00
Mine run.....	2.00@	3.50
Hazard and Harlan (Southeastern Kentucky):		
Block.....	\$4.25@	\$6.00
Egg.....	3.75@	4.25
Hocking lump.....	4.00@	4.50
Smithing.....	3.00@	4.50

ST. LOUIS

Continued Mild Weather Completely Upsets the Market—Retailers Cutting Prices—Mines Idle and Conditions Are Extremely Bad.

The St. Louis situation, if anything, is worse. It is being further aggravated by a price-cutting war between the retailers. The prevailing retail prices now are: Standard \$6.25; Mt. Olive \$7; Cartersville \$8.50, with everything to indicate that there will be a further decline if the weather stays warm.

The industrial situation has not as yet improved, and steam is impossible to move at any price. Standard screenings are down to 80c., lump or egg at \$2.25, steam nut or mine run \$2. Some mines work one day a week and those

producing railroad coal get as much as four days. Miners are finding fault because they have not enough working time.

The real Mt. Olive and Staunton mines have not as yet cut the price. They are getting \$4 on all domestic sizes, with most of their other coal going on contract. Railroad tonnage still continues good, with no labor troubles. The commercial working time per week is about two days. Other mines in this district, however, have cut the price, especially from Montgomery County, where \$3.25@ \$3.50 prevails on domestic sizes and below \$2 on screenings.

In the Duquoin district some coal is being given away as low as \$2.25 on screened sizes. Mines are having a hard time, one or two of them doing fairly well and getting circular prices of \$4 or better, but the others have let their contracts and are crowding the market, with no buyers.

In the Cartersville field conditions are better. Most of those operators who maintained circular prices last summer and fall still get about \$4 on domestic and much of their steam coal is on contract. Working time is fair, everything considered, from two to four days a week. Railroad tonnage is fairly good. The independents, however, are selling screened coal as low as \$3.50, with screenings at \$1.75 and mine run at \$2.50.

In St. Louis proper anthracite is not selling and practically none is moving in. The same with regard to smokeless and also Arkansas, which condition generally has caused the Arkansas mines to shut down. The coke situation is somewhat better, but not what it should be.

COLUMBUS

Demand for All Grades at Low Ebb and Production Is Still Further Reduced—Prices Are Weak All Along the Line.

Continued warm weather, coupled with reduced steam requisitions has still further weakened the coal trade. Retailers are now selling only small lots. Many operators do not believe there will be much improvement before the spring season opens. Requests for hold shipments are coming in from dealers with the result that movement is at a low point. Retail stocks, while not extremely large are still sufficient for the present. Household holders are still following the policy of buying only in small lots. Prices are rather weak although declines are not yet as marked as at the mines. Hocking lump retails \$7.50@ \$8.25 while West Virginia lump sells around \$9. Pocahontas is coming in better and retails \$10@ \$11. Mine run is weak all along the line with prices ranging \$5.50@ \$6.

Production has suffered considerably under the influence of no market. This is more apparent in the Hocking Valley, Cambridge and Crooksville fields. The Southern Ohio Coal Exchange for the week ended Jan. 8 reports an output

of 262,993 tons out of a capacity of 615,034 tons from 380 mines reporting. Of the shortage 214,726 tons was caused from no market.

Steam business is slow in every respect. Plants are not resuming operations rapidly and as a result the demand is low. Those concerns that are operating are using their reserve stocks. Railroad consumption is also reduced to a large extent. As a result mine run and screenings are a drag on the market and prices have reached extreme low levels.

Prices at the mines of the principal coals used in central Ohio are:

Hocking lump.....	\$3.75@	\$4.25
Hocking mine run.....	2.25@	2.75
Hocking screenings.....	1.50@	2.00
Pomeroy lump.....	4.00@	4.75
Pomeroy mine-run.....	2.25@	2.75
Pomeroy screenings.....	1.75@	2.00
West Virginia splints lump.....	4.75@	5.00
West Virginia mine run.....	2.50@	3.25
West Virginia screenings.....	1.75@	2.75
Pocahontas lump.....	5.75@	6.00
Pocahontas mine run.....	3.50@	4.50
Kentucky lump.....	4.50@	5.25

CINCINNATI

Some Industrial Resumption—Market Has Better Tone—Production Still Greatly Curtailed.

Save for the somewhat stronger demand for steam coal coincident with the reopening of several large steel rolling mills and manufacturing plants, the market during the past week remained unchanged. Very few sales were reported during the week.

While the reopening of several plants, after a period of idleness, has tended to strengthen the demand, the amount being moved is not large enough to warrant reopening of a number of mines supplying this territory. Prices at the mines are still below operating costs, with prospects of improvement still distant. Operators say they will allow their mines to remain closed until conditions better warrant the production of coal.

The somewhat better demand has tended to increase the price at the mines. Bituminous lump is quoted \$3 @ \$3.50, while smokeless lump ranges \$6@ \$6.50. Smokeless \$5.

The domestic market remained unchanged, continued mild weather being responsible for the lack of trade in this grade of fuel. Retail prices were as follow; bituminous lump, \$9.25@ \$10.50; mine run, \$8.50@ \$9.25; smokeless lump and egg, \$11.25; mine run, \$10@ \$10.50; anthracite egg, \$15@ \$16.50; domestic egg coke, \$14.50@ \$15.

DETROIT

Lack of Buying Interest Continues—Reductions Fail to Stimulate Demand—Domestic Also Sluggish.

Bituminous—Under the handicap of the general business depression, the bituminous coal trade continues in a waiting attitude with buyers manifesting little or no interest in either steam or domestic sizes. Some of the large factories are using only enough coal to heat portions of their buildings.

While a number of users are now receiving only small shipments under contracts, others are providing for present needs by using coal from reserves. The few concerns that are still buying, in most instances have cut down orders to amounts sufficient for only a few days and show a desire to avoid stocking until they are able to form more definite conclusions concerning the probable trend of business in the coming months.

Domestic buyers have shown a disposition to economize which has been encouraged by a considerable lack of employment and has been facilitated by moderate weather conditions. Dealers are displaying little inclination to increase their stock piles, with the selling outlook so uncertain and the end of the coal year rapidly approaching.

Some consignment coal is reported and jobbers have experienced difficulty in getting it off the tracks before demurrage accrued. West Virginia nut and slack is quoted at the mines at \$2.25; mine run is \$3 and lump, \$4.75. Ohio lump is offered at \$4.50, mine run at \$2.75 and nut and slack at \$2. Smokeless mine run is quoted at \$4.75, but is not plentiful.

Anthracite—Owing to the lessened demand from household consumers, the market is easier though shipments are still light.

CHICAGO

Heavy Consignments of Eastern Coal Flood the Market—Prices Cut to Bone—Hard Coal Demand Slumps.

It would be very difficult indeed to pick out a worse spot to sell coal than Chicago. The weather has been very mild, in fact, very much more suitable for golfing and tennis than skating. In addition, Indiana and Illinois mines have been producing quantities of coal but this is not the main reason why Chicago is a poor place to market fuel at the present time.

Operators in Kentucky and especially West Virginia, have an idea that the Middle West is in great need of coal, consequently they have been consigning to Chicago numerous trainloads of smokeless, as well as splint. These solid trainloads of Eastern coal began to arrive a few weeks ago and the local demand was soon filled. Today there is a very substantial tonnage of Eastern coal drawing demurrage in our yards.

Prices have been cut to the marrow and the buying public is but little interested. Very little coal is moving, as a matter of fact, what little coal is coming into Chicago, comes mostly from Franklin County. The operators in Franklin County have been able to keep their prices reasonable and as a general rule, handled their trade during the summer so that they were able to fall back on them now when they are in need of places to put their tonnage.

Prices on hard coal are remaining fairly firm, but there is but little demand and it is expected that the sales agents for anthracite will be forced to shade their figures a little before long.

Southwest

KANSAS CITY

Demand Slightly Improved with Colder Weather—Prices Fairly Steady—Production Curtailed.

A few days of cold weather temporarily stimulated buying. A great many orders were sent in by wire for rush shipments, proving that stocks in the country were very low. A great deal of unbilled coal is being carried at the mines, especially in the Kansas field, and some mines have been closed down for over a week on account of unbilled coal. Other mines are closing down rather than produce coal for which there is no market.

Some of the operators are having a hard time to explain why prices in the West do not come down in the same proportion that they are reduced in the East. They seem to forget that prices did not advance here as they did in the East, and therefore, cannot be reduced. The law of gravitation, which governs that which goes up must come down, applies equally as well to that which does not go up does not come down. However, there has been a little softening in the prices on one or two grades, but no material change.

Illinois operators, especially those producing the lower grades, have been dumping their surplus in territory west of the Mississippi River at prices just about half, or less, the cost of production, in order to keep running.

South

LOUISVILLE

Prices Showing Slight Improvement—Demand Also Better—Retail Trade Dull.

Prices at the mines have improved slightly during the past ten days, as a result of many industries resuming on a part-time basis at least, and also due to the fact that there is now considerably less distress coal on the market, and not many cancellations. Present tonnage movement is in much stronger hands, and the situation is considered as materially improved over what it was in the last half of December and early January.

Public utilities which have old contracts are taking more coal than they were. Railroads are not taking much fuel, as traffic is light. Gas and by-product plants are buying fairly well.

Retailers say that business has been slightly better due to cold weather, but that whereas half ton orders generally start coming in February and March, there are any number of half ton orders now. Some retailers refused them at first, but dropped the bars upon considering the fact that many workmen are out of employment, and

refusing half ton orders where the price is fifty cents higher would work a hardship on the consumer.

Quotations show Harlan and Straight Creek coals being offered more freely than Hazard, Elkhorn, or Jellico. One jobber quotes the market on Straight Creek and Harlan at \$6 for lump; \$3.40 mine run; \$2.10 screenings. Scattered quotations from various sources show Hazard lump offered \$4@5; Harlan and Jellico, \$5.25@5.75; Straight Creek, \$6.25.

BIRMINGHAM

Steam Market Continues Quiet, with Little Demand—Domestic Trade Good—Production Still Climbing, Despite Inactive Market.

Dullness which has characterized the steam coal market since the Christmas holidays still holds sway, and there is little or no demand for spot coal or efforts at making contracts on the part of consumers. While railroads, in a number of instances, have cut down contract deliveries to the minimum tonnage to be taken under fuel agreements, furnace interests and some other classes of consumers are absorbing the output of coal pretty well and there is not any serious accumulation, car reports showing that practically the entire tonnage mined during the last week was moved promptly. Contracts for bunker coal, which have been in hand for some time, require a considerable tonnage, which is moving both by rail and water to the ports of Mobile, Pensacola and New Orleans.

There is demand for more of the domestic sizes than the mines are now producing, and there is little or no accumulation on retail yards, the coal being passed on to the consumer about as fast as received.

The output in the Alabama field for the week ended Jan. 15 actually reported, aggregated 330,000 tons, which exceeds the record of any week since Jan. 24, 1920, the tonnage not reported being estimated from 5,000 to 10,000 tons, and representing a good increase over the week of Jan. 8.

West

DENVER

Bituminous Holding but Lignite Weakens—Demand Is Lower—No Market Losses Grow.

Still greater reductions in the price of second grade lignite is marking a drive to force down the better grade. The market is weak, and orders are slow. Bituminous is holding up, but competition threatens to precipitate cut-throat conditions similar to those existing before the war.

The so-called legitimate dealers are maintaining a price of \$8.40, based on a mine price of \$4.25. First grade

lignite is \$5.75 at the mine and \$9.90 retail. Sidetracks in the neighborhood of mines on the Colorado and Southern and Union Pacific are cluttered with loads of coal awaiting billing.

Routt County bituminous is \$6@-\$6.50 at the mine and \$12@-\$12.50 retail, while southern bituminous is \$5.50@-\$6 at the mine and \$11.50@-\$12 retail. Steam is steady at \$6.50@-\$6.75 and lignite steam is uncertain, ranging \$4.75@-\$5.25 in Denver markets.

Production in all fields, except the second-grade lignite, shows a little better for the week ended Jan. 8, although this probably will be discounted in the week closing with the 15th, figures for which are not yet available. The total production in Colorado for the week ended Jan. 8 was 220,334 tons of a possible full time output of 273,296 tons. Car distribution conditions caused a loss representing 12.7 per cent of the total output.

Canada

TORONTO

Domestic Trade Active—Good Supplies On Hand—Bituminous not Much in Demand.

The domestic trade has lately shown increased activity due to a short spell of zero weather. Coal is being received in about normal quantities, and the yards have good supplies on hand. There is no improvement in the call for bituminous as the leading coal-consuming industries continue quiet.

Quotations are as follows:

Retail:	
Anthracite egg, stove, nut and grate.....	\$16.90
Pea.....	15.40
Bituminous steam.....	12.75
Domestic lump.....	13.25
Cannel.....	17.00
Wholesale f.o.b. cars at destination:	
Three-quarter lump.....	9.50
Slack.....	8.25

while the scale agreement runs for a year from next April 1 the men may favor a slight reduction to secure steadier employment.

The spot market is quotable about \$2.50 for steam mine run, with by-product mine run and 1-in. gas at \$3@-\$3.50.

UNIONTOWN

General Curtailment Policy Reduces Distress Sales—Little Spot Tonnage Offered—No Interest in Coke Contracts.

General policy of both coal and coke operators to keep production within the limits of demand has virtually kept all unconsigned cars of both fuels from the Connellsville regions. While the execution of that policy has resulted in the closing down of all but the larger operations which ship on contracts, operators declare that in the end it will be to their advantage not to have an over-supply on hand when business activity again resumes.

Suspension of operations at a time when the market is below cost, taking into consideration the value of unmined coal, is entirely without precedent in this region. In former periods of business depression, operators had been forced to keep going and accepted whatever the market would pay in order to get working capital. "Ready money" is not now one of the problems of operators and they seem determined to wait until the market reaches a figure at which they can profitably operate.

There continues to be no active demand but the fact must be recognized that it could not be obtained if wanted until the coal is mined or the coke burned. Some sales were made in byproduct coal this week at an average price of \$2.50, with some operators asking \$3. Steam coal may be bought at \$2, reports being received of sales varying each day.

Coke producers and consumers are still far apart on price views and further reduction has been made in merchant operations, the suspension now being so general that the output is at a negligible figure. Producers have set \$6 as their price limit while consumers are willing to pay \$5 for furnace coke. No contracts are being made and no spot tonnage is on the market.

EASTERN OHIO

Production Slumps With Light Demand—Prices Stabilize—Non-Percentage Basis for Car Distribution

A considerable slump occurred in production during the week ended Jan. 15, the estimated output being 346,000 tons which is 55,000 tons below production of the previous week and about 52 per cent of the potential weekly capacity of 660,000 tons. The situation is not showing any improvement, and it is expected that there will be further curtailment in production because of the light demand. The B&O has advised operators that in view of the present

News

From the Coal Fields

Northern Appalachian

CONNELLSVILLE

Stagnant Market—Consumption Very Light—Surplus Sold as Heating Coke.

The coke market has become completely stagnant, there being such light operation of blast furnaces and foundries that there is very little consumption. Contracting for furnace coke represents but a fraction of the usual quantity, and yet the total shipments of merchant coke are considerably less than the volume under contract. The contracts, in the main, are on the general basis of a five to one ratio against basic pig iron at valley furnaces. Coke shipped against such contracts will be billed at \$6 as long as pig iron is unchanged. Coke could be bought on contract now at a five to one ratio or at a flat price of \$6 for the half year, the former being probably more advantageous to the buyer, but there is no interest at any price since furnaces are out of blast and see no prospect of their being able to resume in the near future.

The spot furnace coke market is made by occasional odd lots that are practically forced for sale, and prices would be lower than they are were it not that coke can usually be disposed of for heating purposes at about \$5.

Foundry coke in spot lots is selling in a moderate way and more brands can be had at the price range hitherto quoted. A little contract business has been done at \$6.75, while some well-known brands are held at much higher figures, in which buyers are not interested. The market is quotable as follows: spot furnace, \$5@-\$5.50; con-

tract, \$6; spot foundry, \$6.50@-\$7; contract, \$6.75@-\$10.

The *Courier* reports coke production in the Connellsville and Lower Connellsville region in the week ended Jan. 15 at 170,180 tons, a decrease of 5,170 tons, furnace oven production decreasing 4,390 tons and merchant oven production 780 tons.

PITTSBURGH

Production Decreases Slowly—Small Spot Demand—Possibility of Lower Wage Cost—Prices Generally Firm, with Occasional Forced Sales.

Production continues to taper off, but only slightly. The majority of operators are disposed to limit their output to supplying contract requirements, since coal cannot be sold at a profit in the spot market, but there is still some surplus, produced by mines that are less careful, and this makes the market on account of the limited spot demand. Some forced sales, made to save demurrage, are reported at prices close to \$2.

Demand for railroad fuel is still fair, while demand from manufacturers against contracts, continues to decrease. Gas coal shipments are quite fair. For the highest grade gas coals good prices are still obtained, though ordinary grades bring scarcely more than steam, except for the extra for screening.

Practically no interest is manifested in contracts for the new coal year, though ordinarily at this time there are negotiations. Consumers seem to feel that there will be no difficulty in obtaining full supplies and think that any future change in values will be in their favor. A decrease in the wage cost of producing coal is regarded as not entirely improbable, on the basis that

good car supply and the prospects of its continuance, cars will be distributed on a non-percentage basis.

While at the present rate of production, railroads have been taking around 50 per cent for fuel, it is a well known fact that their requirements have fallen off considerably along with other lines of industrial activity, and there will be a temporary reduction in output for railroad fuel account.

The arrival of severe weather has slightly stimulated domestic demand, but dealers are having no trouble in meeting it. Dealers state that they are now able to purchase Pocahontas mine run at \$3.25 and West Virginia Splint lump at \$4.25 f.o.b. mines. The market continues quite dull, but mine prices remain about the same as quoted for last week, and it seems to be the consensus of opinion that prices have hit bottom. The range on spot coal is as follows: slack \$2@2.75, mine run \$2.50@3, 3-in. lump \$3@3.25, 14-in. lump \$3.50@4, domestic lump \$3.75@4.50.

CENTRAL PENNSYLVANIA

High Cost Mines Down—Aggregate Production not Materially Affected—Prices Still on the Toboggan.

Production loss during the second week of January was 275,000 tons. The rule in the field is that the mines producing the higher grades are the ones being operated, as is shown by the fact that while the tonnage has decreased about 25 per cent, fully 45 per cent of all mines in the field have been closed. A large majority of these were small, high-cost producers.

Coal prices in the central Pennsylvania field continue on the toboggan and market conditions continue about the same in the district as for the first and second weeks of January. We quote Pool 10 at \$2.65 with Pool 11 reaching the low mark of \$2.10, with the market literally "on the bumps." Spot market prices in the Punxsutawney district were thought to have reached low water mark last week at \$3.25, but there has been a steady slump until spot sales were made this week at \$2.25 and some as low as \$2.

FAIRMONT AND PANHANDLE

Mine Idleness Grows—Low Prices No Inducement and Spot Sales Are Few—Empties Clog Sidings.

FAIRMONT

Idleness was general throughout northern West Virginia during the second week of January, about 300 mines being in idleness by the last day of the week. Production in the Fairmont region alone was fully 50,000 tons under that for the preceding week. Even contract orders were cut down. Little or no coal was changing hands in the open market. Despite general conditions, a very considerable tonnage was being shipped to Eastern markets.

As so many mines were not in operation the large number of open tops available only served to clog sidings. Tidewater shipments during the early part of the week were rather large.

Considering the general lack of demand, Tidewater dumpings were rather encouraging.

It was out of the question to arrive at prices, as there was no way of gaging them in view of the fact that no coal was being sold on a spot basis. Fully 50 per cent of the coal produced on the Monongah Division of the Baltimore & Ohio was being taken by the railroads.

NORTHERN PANHANDLE

Commercial mines were not operating more than on a half-time basis, which sufficed to take care of all orders. Few sales were made in the open market and no new contract business was developing. Operations were being materially curtailed. The price range on mine run of \$2.75@3.25 represented merely nominal prices, because few if any sales were being consummated at such figures. Had mines been able to operate more of the time, they would have had plenty of equipment, for with idleness so general, cars were thick in the Northern Pan Handle region.

Middle West

INDIANA

All Grades in Weak Demand—Minor Labor Troubles—Domestic Prices Are Firm.

Demand continues on the down-grade. The industrial depression has cut seriously into the demand for steam coal. Demand for domestic is not as heavy as it should be at this period of the year, because of the extremely moderate winter. In spite of the lack of demand, coal for domestic use is still bringing the price first set by the special coal commission.

During the past week operators have been troubled with a series of minor disputes that have tied up many mines. The epidemic of labor troubles does not appear to be segregated in any one section, but is common all through the district. Operators are inclined to attribute this to a natural reaction from the steady pre-Christmas run.

There is considerable free coal on the market. The price of mine run sold out of the state has dropped about fifty cents during the past two weeks and unless the demand picks up, a further slight decline is expected.

WESTERN KENTUCKY

Demand Showing Slight Improvement—Less Distress Coal on Market—L. & N. Suspends Contract Orders.

The situation in the western Kentucky district is showing a little improvement as a result of the wagon and small mines having dropped out of competition, this taking a lot of poor grade and distress coal from the market. The larger mines are operating about three days a week with a plentiful car supply at command. Cold weather of the past few days has cleaned up rejected shipments and

coal loaded without orders, and prices are just a slight bit better than they have been. Retailers are buying better as a result of the cold spell.

Western Kentucky field prices as reported for the week ended Jan. 15, showed lump, average, \$4; range, \$3.50@4.25; mine run, \$2.85; range, \$2.50@3.25; nut and slack, \$2.60; range, \$2.40@3. Some lump coal has been sold as low as \$3, and screenings, \$2, while pea and slack is quoted \$1.75@2, with some offers as low as \$1.40.

There is not much demand from any special industries. However, prospects are considered brighter for steam coal in Michigan and Illinois. The Louisville & Nashville R.R. has ordered the suspension, effective until further notice, of all shipments of contract coal from the western Kentucky field. Several mines are idle.

DUQUOIN

Market Is Unimproved—Production Further Curtailed by Dull Demand.

The market in southern Illinois has continued to show its dullness the past week and the effect of the slump is now being felt keenly in Franklin County, where up to the last few days coal had moved almost as freely as in better times. Some of the larger railroads are now unhesitatingly refusing to accept certain coals on the grounds of "poor quality"

The average production throughout the district did not pass the 75 per cent mark, a few mines still holding out in some manner to operate every day, but the majority being idle at least from two to three days. The men seem to be eager to get in all the work they can and no labor trouble of any consequence was noted during the week.

Middle Appalachian

LOW-VOLATILE FIELDS

Good Production of Contract Coal—Spot Demand Unimproved—Prices Steady—New Contracts Being Closed.

POCAHONTAS AND TUG RIVER

Production in the Tug River field during the week ended Jan. 15 reached a total of 94,000 net tons, a decrease as compared with the previous week, but still regarded as excellent, in view of general conditions in other fields. The drop in production was due entirely to some of the largest companies practically shutting down for one or two days in order to avoid set-out loads. The attitude of the railways in shutting off delivery of empties to a mine as soon as it fails to furnish adequate consignment has had an excellent stabilizing influence.

Prices on Tug River coal remained the same as during the opening week of the year, with mine run averaging about \$5.

Production in the Pocahontas field was not far short of 400,000 tons. That was because the market was readily absorbing the product of the district, with the price holding firm on mine run

at about \$5. Such a price was maintained in the face of the fact that there was little or no spot demand. The only factor which tended to cut down production at all was a few cancellations of contract orders.

Slack continued to command about \$4, more spot orders being placed for that grade than for mine run. There continued to be a somewhat greater demand for prepared sizes in the Western markets. Every mine which was operating had a full quota of cars.

NEW RIVER AND THE GULF

At no time during the second week of the month were New River mines short of cars. This wealth of empties caused some inconvenience, for there was no place to store all the empties available. Even such mines as were loading to capacity had cars left over every day. With production thus stimulated more coal was being shipped than during the high productive periods of 1920, even though there was not much of a market, so far as spot sales were concerned. Contract orders were tiding over the dull period and not less than 25,000 tons a day were being loaded out. Even in the face of the fact that there was so little spot steam demand, prices were not depressed. A fairly large demand in the open market for egg and lump tended to increase Western shipments.

Activity in the making of new contracts was somewhat marked. Prices were invariably well above \$5. Contracts were placed for delivery of coal alongside at \$9, such coal to be shipped to foreign markets. This means a basis of about \$6 at the mines.

The second week of the year found the mines in the Gulf producing only about half of potential capacity. The car supply was so large that it would have more than sufficed to take care of maximum production.

Production was largely confined to mines having contract orders to fill. Where mines were without contracts, operations were almost totally suspended, such mines finding it impossible to place their coal in the open market owing to the very general refusal of consumers to buy spot coal. Even with the demand so slack, prices still clung to the \$5-mark. Prospects of contracts being closed encouraged producers in the field to believe that a number of companies would be able to resume operations before long.

HIGH-VOLATILE FIELDS

"No Market" Losses Grow—More Operations Close—Cancellations Hit Contract Orders—Troops Leave Thacker Field.

KANAWHA

The Kanawha field was accorded a car supply far in excess of the ability of mines to load during the week ended Jan. 15. The supply grew in volume throughout the week instead of diminishing. Even under normal conditions it would have been unable to load anything approaching the number of empties on hand. Mines, however, were un-

able to operate more than two days out of the six. Contract orders were so seriously curtailed that little business was left of any kind. No coal, so far as reported, was being disposed of on a spot basis, the question of prices not entering into the selling equation, as buyers did not want coal on any terms for the time being. A little gas coal was being sold—certainly a larger volume than of steam, but even gas coal sales were infrequent.

LOGAN AND THACKER

If anything, more empties were placed during the second week of January than during the previous week. The output was greatly curtailed by market conditions. Where mines were without contracts, as a general rule operations were suspended, for comparatively few spot sales were recorded, nor was it possible even to force any coal on the market, no matter how great a sacrifice there might have been in price. Hence producers abandoned any attempt to secure orders while awaiting a revival of demand. For neither slack nor mine run was there any market whatsoever. The demand was also far under normal for prepared sizes, \$4.25 representing the average price.

In view of the general absence of demand, production was holding up remarkably well in the Williamson field. The output continued to be far above that of the latter part of 1920 when operations were so seriously curtailed by a strike. In the second week of January, even with the general demand so poor, production was not far from 100,000 tons. Inability to market coal constituted the chief source of loss.

Considering the fact that only high volatile coal is produced in the Williamson region, conditions were regarded as generally satisfactory from a market and an operating standpoint. A large car supply was also conducive to a large production. The big event of the week was the withdrawal of Federal troops, state police taking their place. By Jan. 17 two companies of Federal troops had been withdrawn.

NORTHEASTERN KENTUCKY

The biggest slump in a year or more was seen in the second week of January, production dropping from 101,000 tons for the week ended Jan. 8 to 69,000 tons. As losses from "no market" amounted to 171,000 tons, it will be observed that lack of orders was principally responsible for the general shut-down. On Saturday, Jan. 15, only eight mines in the entire field were in operation.

The bottom had dropped completely out of the market, producers finding it utterly impossible to dispose of their product at all. Rather than attempt to force coal on the market, mining was generally suspended. As reflected in the small production, only a few contract orders were left intact. With so few standing orders to be filled, even mines with contracts were only operated during a small portion of the week.

Steam coal could not be marketed

even at a price under the cost of production, so poor was the demand. The call for gas coal was little better. The nominal price on mine run was about \$3 or under, but no mine run to speak of was being sold at that or any other price, and the same statement applies to slack at \$1.75 a ton.

Southern Appalachian

SOUTHEASTERN KENTUCKY

Prices Remain Firm—Trade Sluggish on Steam—Many Operations Closed—General Operating Conditions Good.

There was but little if any further reduction in prevailing prices during the week ended Jan. 20, with quotations around \$5@5.50 for best blocks, \$3@3.50 for mine run, and \$1.75@2 for steam. These prices cannot well fall any lower, for they are too near the cost of production to stand any further reduction, and in fact only the better mines can now operate at a profit.

It is estimated that not more than one third of the mines are making any attempt to operate. The few operating are able to get all the cars they want. Labor is also quite plentiful. The weather is such that traffic movement is speedy, and loads are handled quite promptly.

Contract talk is beginning to filter through, with some of the wise ones even speculating as to the probable prices that will be offered for Lake coal. However, price-makers at the mines are a little bit cautious about naming a price for any considerable quantity for future deliveries.

Considerable export coal is being shipped from the field, just now, in fact this is about the only market for mine run. However, prices are very low, and it is not very attractive business, except as something to keep the mines running.

West

UTAH

Cold Weather Improves the Demand—Labor Conditions Satisfactory.

Several very cold days during the past week have improved the retail coal situation somewhat from the dealer's standpoint. There is also some improvement in the Coast trade. Labor conditions continue satisfactory.

The increasing importance of Utah as a coal producing center for the Inter-mountain and Pacific states is seen in the report of the annual production for the past year. Mines broke all previous records by mining 5,895,105 tons. This is 758,280 tons more than were mined in 1918, the best previous year. January was the biggest single month with 589,668 tons, and November second with 558,982 tons.

Milwaukee Wholesalers Face Loss Because of Tardy Lake Movement in 1920

Late Arrival of Coal Necessitated Laying in Stocks at Prices That Allowed Little Profit—Exporters and Speculators Add to Panicky Conditions—Dealers Absolved of Profiteering Charge—Depression Expected to Be Short-Lived

BY H. BLEYER

TO REVIEW the coal business at Milwaukee during the year 1920 means to recall an array of trying situations which combined to make the season memorable as the worst ever experienced by those engaged in the trade. To wholesalers the year was nerve wrecking from start to finish. They fairly had to beg for coal in the spring, and later on, when coal did begin to move in a reasonable way, prices at the mines soared to such lofty heights that they were forced to put in stocks at figures which promised little profit in the end; in fact, if they escape without loss they will be fortunate.

The opening of navigation in the spring found the docks absolutely bare as the result of an exceedingly severe winter, during which the yards were besieged daily by endless lines of vehicles of all kinds, and coal had to be rationed out in small lots. It was only natural, after an experience like this, that the dock companies should seek by every means within their power to rush coal up the Lakes as fast as ships could carry it. But in this timely service they were sorely balked by labor troubles at the mines, by a strike of switchmen and by a scarcity of railway cars.

The movement up the Lakes was so slow that by Aug. 1 less than a million tons of hard and soft coal had been received, when receipts for years back during the same period averaged in excess of two million tons. As a result, an order was finally issued giving priority to coal shipments for upper Lake ports. But the output of the mines became so small and uncertain that buyers developed a panicky feeling, and exporters and speculators bid coal up to such high figures that dock men of the

Northwest could not afford to compete with them. However, it was imperative that they provide stocks sufficient to tide over the winter and prevent suffering, and to that end they bought coal at the risk of heavy financial loss. August, September and October witnessed the heaviest cargo receipts of the season. Arrivals fell away during November and December, contrary to general expectation, and the year closed with cargo receipts close to a million tons short of the record of 1919.

To meet increasing costs Milwaukee dealers advanced prices of all kinds of coal as the season progressed. Complaints of alleged profiteering were lodged with the State Marketing Commission, which immediately instituted an investigation to determine whether there was any ground for the charges. The heads and representatives of six Milwaukee distributing companies were called to testify as to their methods of marketing, their price increases and their margins of profit. All denied having direct knowledge of quotations made by their competitors, and laid the blame for the prevailing high prices on the generally chaotic conditions which confronted the trade. The investigation was pursued at other Wisconsin receiving points, with the same result. It is evident that no crooked work was found, as the report of the investigators was never made public.

Milwaukee dealers are not advancing predictions as to the future. It is admitted that soft coal is bound to go to much lower levels next spring, on a basis of cost of production plus freight rates. Coke will have to follow soft coal. Anthracite is expected to take the usual drop of 50c. per ton in the spring. The outlook for business is not very

bright at present, owing to a falling off in coal consumption by the industries. It is believed by many, however, that this condition will be short-lived and that there will be a change for the better before the new coal season begins.

Following are the retail prices on coal and coke at Milwaukee, compared with the prices which prevailed at this time last year:

ANTHRACITE*

	Jan., 1920	Jan., 1921
Egg.....	\$12.10	\$15.95
Stove.....	12.35	16.20
Nut.....	12.50	16.20
Pea.....	11.95	14.35
Buckwheat.....	9.50	12.65

BITUMINOUS*

	Jan., 1920	Jan., 1921
Pittsburgh, Hocking and Youghiogheny.....	\$7.75	\$10.75
Pile run.....	6.75	10.25
Screenings.....	5.75	9.00
West Virginia screened.....	8.00	11.00
Pile run.....	6.75	10.50
Screenings.....	6.25	9.00
Pocahontas screened.....	11.00	16.25
Mine run.....	8.75	12.50
Screenings.....	6.75	11.00
Smithing.....	7.75	13.00
Kanawha Gas mine run.....	7.00	10.00
Illinois and Indiana screened.....	7.75	10.00
Pile run.....	6.75	9.50
Screenings.....	5.50	9.00
Coke.....	12.00*	17.25*

* Carrying charge, 1920, 75c.; 1921, \$1, except for coke, on which there is no carrying charge.

Logan Field Rapidly Developing

PRODUCTION of coal in the Logan field of West Virginia in 1920 was about 9,500,000 net tons, from a potential mine capacity of 22,000,000 tons. The number of producing mines in the Logan district increased during 1920 from 115 to 126, and it is probable there would have been even greater development had railroad facilities made it possible.

The Chesapeake & Ohio R.R. is at present constructing a double track on the Guyan Valley division, so that practically one-half of the division from Logan to Barboursville will be double tracked when the work is completed. The railroad company also intends to build twenty miles of additional sidetrack in the Peach Creek yards. These improvements will prove beneficial, and because of them Logan operators believe that it will be possible to increase production greatly if sufficient motive power and equipment is made available to handle the tonnage.

At a time when the export demand was heaviest Logan shippers were frequently cut off from Tidewater by Chesapeake & Ohio embargoes. A large proportion of the output was shipped to Western markets where automobile, by-product and other industrial concerns were heavy buyers.

The city of Huntington developed into an important market center during the year, especially for Logan coals, and many sales companies, as well as a large number of producers, established offices there for the purchase and sale of Logan coal. Although prices were high in 1920, many of the companies in the field obtained only a moderate return on the sales because so large a proportion of the output was under contract.

RECEIPTS OF COAL AT MILWAUKEE FROM ALL SOURCES DURING THE YEAR 1920 WERE AS FOLLOWS:

Month	—By Cargo—		—By Car-Ferry—		Total By Lake Hard and Soft, Tons	—By Rail—		Grand Total Hard and Soft, Tons
	Hard, Tons	Soft, Tons	Hard, Tons	Soft, Tons		Hard, Tons	Soft, Tons	
January.....			17,285	16,428	33,713	1,007	20,121	54,841
February.....			11,704	48,791	60,495		40,632	101,127
March.....			3,928	24,531	28,459	89	68,988	97,436
April.....	17,500	26,000	12,184	47,887	103,571		64,967	168,538
May.....	109,600	136,462	19,204	21,531	286,797		214,246	501,043
June.....	138,771	191,573	3,546	22,015	355,905		106,186	462,091
July.....	104,690	259,459	5,082	18,028	387,259	390	112,237	500,886
August.....	126,206	401,554	4,026	13,408	545,194	2,800	73,240	621,234
September.....	76,940	487,757	4,547	15,556	584,800	224	100,434	685,458
October.....	127,656	425,612	2,732	15,371	571,371	379	91,057	662,807
November.....	103,823	335,955	1,213	10,368	451,359	74	73,229	524,662
December.....	67,817	110,806	4,723	49,244	232,590	95	84,569	317,254
Total.....	873,003	2,375,178	90,174	303,158	3,641,513	5,058	1,049,906	4,696,477
Total, 1919.....	985,692	3,174,078	91,264	218,086	4,469,120	2,228	530,708	5,002,056
Increase.....				85,072		2,830	519,198	
Decrease.....	112,689	798,900	1,090		827,607			305,579



MINE And COMPANY NEWS



ALABAMA

A reorganization of the Empire Coal Co., of Birmingham, has been perfected by local and Eastern capitalists and the coal properties of this company and the Panama Coal Co., and a large acreage of virgin coal lands in Walker County, controlled by Walter Moore, a local operator, have been merged in the new organization, which is capitalized at \$2,500,000. While headquarters of the company will be located in Baltimore, operations will be directed from Birmingham by Walter Moore, president of the new corporation. The Empire Coal Co. and the Panama Co. now have active operations with a normal capacity of 52,000 tons per month, and extensive improvements and developments are planned for the near future. Much of the virgin land included in the merger is on or adjacent to the Warrior River, and water transportation will be available.

The Crescent Coal Co. is opening up a new mine at Armstead Switch, near Oneonta, Blount County. The Crescent company purchased the holdings of C. R. Middleton and associates and is now constructing tipples and building siding and tramways preparing to commence operation at an early date.

INDIANA

The suit filed several weeks ago in Federal Court by the Farmers' Loan and Trust Co., trustees, against the Evansville & Indianapolis R.R. for thirteen carloads of coal alleged to have been taken illegally from the Pike County Coal Co. was dismissed Jan. 11. With the dismissal was filed a letter from the coal company saying that the Big Four R.R. had requested that the suit be dropped and that it would make direct settlement with the coal company. The original complaint charged that while the E. & I. was in the hands of a receiver certain employees of the Big Four system helped to operate it and that the coal in question was seized by the Big Four for its own use.

Abandonment of some of the larger mines around Brazil in District 8, United Mine Workers of America, known as the Indiana block coal field, is predicted by several mine operators who assert the cost of production of the harder coal is so great now that it can not be mined profitably. Some operators state that the cost of production and other expenses amount to \$5.80 a ton, and that they are unable to get this price in competition with the larger bituminous mines, where coal is more easily produced.

The Gladstone Coal and Mining Co., operating three miles north of Petersburg, is staking off a town on the Washington road and will build a number of houses early in the spring. A store building, a bakery and a company store will be erected.

The Bicknell coal mine, the oldest in point of service in the Knox County field, has been abandoned and its owners have ordered the mine "stripped." The shaft was sunk in 1890 and the mine has since been in constant operation. Vester Farris, who helped sink the shaft, was an employee when operations ceased.

Announcement has been made of the formation of the National Development Co., of Indianapolis, with a capital stock of \$80,000, the purpose being to mine coal. The directors are James R. Swartz, Timothy P. Sexton and Edward F. O'Donnell.

KENTUCKY

In spite of the dullness in the present demand for coal there are several new incorporations recently along with several increases in capital to take care of enlargement of business. Among new incorporations are: The Hord Coal Co., Manchester, J. C. Cloyd, D. Y. Lyttle and A. D. Hall. Boone Fork Coal Co., Jackson, \$12,000. J. E. Dean, Oliver Kash, and Walter Cox. Big Four Coal Co., Williamsburg, \$30,000. G. C. Cricillis, Margaret Cricillis, and E. F. White. Jenkins Coal & Coke Co., Jenkins,

\$60,000. L. B. Abott, H. S. Carpenter, and C. C. Goertmiller. Increases in capital are: Pinson-Elkhorn Colliery Co., Pikeville, from \$50,000 to \$100,000. Darb Fork Coal Co., Catlettsburg, from \$100,000 to \$200,000.

Much interest has been manifested in a coal land suit between the Marion Coal Co. of Blackey, and Ben McIntyre, brought up before Judge Sampson, of the Court of Appeals, from the circuit court of Judge Vanover, the latter having decided in favor of the coal company. McIntyre claims right to the surface land, claiming that his father merely sold the coal under the land, while the coal company claims that the surface was included in the deal.

MINNESOTA

The St. Paul Coal Co. has just filed articles of incorporation in St. Paul, to do a wholesale and retail business with capital stock of \$100,000. The incorporators are Watson P. Davidson, a St. Paul business man, ex-Governor J. A. A. Burnquist, just retired from office, and Fred O. Block, of Muscatine, Iowa. The last named is treasurer of the G. W. Block Co., which has yards at a number of towns in southeastern Iowa.

The Hennepin Atomized Fuel Co., of Minneapolis, is completing another pulverizing plant for producing peat in pulverized form. This plant is to be the first of several to be located at different points. The use of the powdered peat is claimed to have been very satisfactory in the trials given in a Minneapolis office building.

NEW YORK

W. A. Harriman has been elected Chairman of the Board and George E. Warren, President, of the Warren Export Coal Co., just incorporated under the laws of Delaware. Harriman shipping interests and the George E. Warren Co. are equally interested in the new export corporation which has been formed for the purpose of doing a general export cargo and bunker business in coal. Other officers of the company elected are: Lester H. Monks, vice-president; George P. Oswald, vice-president and general manager; G. Walter Anderson, treasurer; and F. W. Anderson, secretary. Offices of the company will be temporarily in the Grand Central Terminal, New York City.

B. Nicoll & Co. has transferred the business of dealing in iron, coal and allied products conducted under that name, together with all the assets employed by or in connection with it, to B. Nicoll & Co. Inc., a corporation organized and formed to carry on the business of B. Nicoll & Co. The corporation will assume the outstanding contractual obligations of B. Nicoll & Co., and will continue the business on the same lines as it has heretofore been conducted. In addition to Benjamin Nicoll, who will continue in general charge of the business as president, the officers of the company are: George F. Eldridge and Henry K. Stauffer, vice-presidents. Courtlandt Nicoll, secretary and Edward Mullan, treasurer. Harold C. Fridham has been appointed assistant to the president, and Nathaniel C. Ashcom, manager of eastern sales.

OHIO

The A. J. Morgan Coal Co., formerly operating Johnson, Franklin and Taplin mines, has been dissolved and the Cleveland & Western Coal Co. will operate Johnson mine at Pipe Creek and Franklin mine at Stewartsville. A. J. Morgan of Bellaire, has taken over the Taplin mine at Bannock, which he will operate independently. The Cleveland & Western Coal Co. has headquarters in Cleveland, and the officers are: F. E. Taplin, president, C. F. Taplin, vice president in charge of finances, A. P. King, vice president in charge of operations, Wm. Taylor, vice president in charge of sales, and W. J. Semple, secretary-treasurer. This company recently acquired

11,000 acres of coal land near Powhatan, Monroe County, along the Ohio River, and engineers are now surveying the property.

The Sunday Creek Coal Co. has started to load coal at its new mine, which will be known as No. 8. This mine is re-equipped after being idle for a number of years. New equipment, electrically operated, has been installed.

The mine of the Hysylvania Coal Co., at Gloucester, which was flooded Oct. 19, 1920, has been pumped out and is ready for operation. It required just about three months for the pumping operation, and two large pumps were installed. All of the machinery was found intact and practically unharmed.

The Buena Vista Coal Co., of Steubenville, has been chartered with a capital of \$60,000 to mine and sell coal. Incorporators are F. S. King, W. R. Alban, S. Welday, M. Croner and S. H. Anderson.

Papers have been filed with the Secretary of State increasing the authorized capital of the Alma-Thacker Fuel Co. from \$150,000 to \$500,000. The company operates a property in the Mingo field of West Virginia.

Papers have been filed at Cincinnati increasing the capital of the Tildesley Coal Co. from \$150,000 to \$250,000.

PENNSYLVANIA

The American Coal Co. of Allegheny County, has declared a dividend of \$1 a share, payable Feb. 1. The last payment made on this issue was of \$2 a share on March 17 last.

The Youghiogheny & Ohio Coal Co., Cleveland, has disposed of Manifold Mines Nos. 1 and 2, and its Enterprise properties, near Washington, Pa., to the McClane Mining Co. of that city. The properties consist of nearly 4,000 acres of unmined coal with three completely equipped operating plants and is contiguous to other holdings of the purchasing company, and is traversed by the Pennsylvania and B. & O. roads. The acreage is entirely made up of high grade gas coal and it is reported the deal involved over \$3,000,000.

The Katherine Mine of the Union Connelville Coal Co., at Simpson, Fayette County, which had been sealed up for several weeks on account of a fire, was opened recently and the air turned through it and the fire found to be entirely out. The damage to the mine is estimated to be about \$150,000. Men have been started relining the shaft preparatory to getting the mine in shape to resume operations.

Boland Brothers, of Dunmore, have been incorporated with \$60,000 authorized capital stock. John W. Boland, of Dunmore, is treasurer, the other incorporators being Leonard P. Boland and Eugene G. Boland. The corporation will buy, lease and deal in coal lands, and will mine coal.

Banks of the old Scott mine between Lytle and Forestville, in the Minersville district, are being washed by O'Malley Brothers, of Scranton, a considerable force being already at work there. The capacity of the operation will shortly be increased to shipments of 1,000 tons a day.

The South Fork Coal Mining Co., of South Fork, has contracted for the installation at their mine at El Mora of a wood tippie and retarding conveyor with all dumping facilities at the head house. Work will be started immediately by Roberts & Schaefer Co.

One of the largest coal land deals recorded in central Pennsylvania for some time was closed recently in Somerset County, when a tract of 533 acres in Quemahoning township, near the town of Kantner, was purchased by W. G. Wilson of Mineral Point, Ira F. Link of Conemaugh township and Dr. J. D. Kelper of Johnstown. The land was purchased from Daniel Ott and George A. Ellenberger of Johnstown, doing business under the firm name of Daniel Ott & Co. The consideration was \$80,000. The Midway Coal Corporation of Johnstown conveyed several smaller tracts of land in Somerset County to the same three men for a consideration of \$15,000.

WEST VIRGINIA

Raleigh people have launched a new company—The Beckley Fire Creek Smokeless Coal Co., which will operate on a large scale in the Raleigh County field as indicated by the company's capitalization of \$500,000. Conspicuous in the organization of this company were Prince E. Lilly, Thomas H. Wickham, W. W. Goldsmith and Ashton File of Beckley, W. Va.

Development of the Monongalia County field continues as indicated by the organization of the Barbara Mining Co. of Cassville which will have its principal operation in Cass district. This company has a capital stock of \$250,000. New York and Pennsylvania people are largely interested as follows: W. W. Woodruff, F. F. Woodruff, A. W. Davis, all of Pittsburgh, Pa.; George J. Meehan of Buffalo, N. Y., Charles E. Craig, of Morgantown, W. Va.

Clay County coal land will be developed by the Freer Coal Co. with its main office at Charleston. It is capitalized at \$50,000. Ohio people for the most part are interested in the new concern as follows: George G. Bauer and Henry W. Bauer of Buchtel, Ohio; Frederick A. Freer, George F. Freer and Frank C. Freer of Nelsonville, Ohio.

Marshall County coal land will be developed by the McMillan Coal Co., the general office of which will be at Wheeling. Among those most largely interested in the new concern are W. W. McMillan, George A. Blackford, both of Wheeling; William Rennie, J. E. Barth, of Shadyside, Ohio; A. Legarden, Martins Ferry, Ohio.

New entries are to be driven and more houses for miners are to be provided by the E. E. White Coal Co., all with a view

to increasing the output. As the first step in improvement officials of the Virginia Ry. visited the Glen White plant early in January and made an inspection of the track-age at the plant.

J. J. Ross, of the Logan Mining Co. and also president of the Logan Operators Association is one of a number of Logan coal people who have formed the Ross Smokeless Coal Co. That company is preparing to operate in Meadow Bluff district of Greenbrier County. Others interested beside Mr. Ross in the new concern are: H. A. McAllister, J. R. Slack, W. C. Devault and D. B. Bailey of Logan.

The Whiteley Coal Co. has secured 2,000 acres of Pittsburgh in Whiteley Township near Waynesburg, Pa., this coal having cost approximately \$300 per acre, the aggregate sum involved being \$600,000. The property was purchased through E. D. Patterson.

Sheriff L. L. Young, of Harrison County has launched the Young Coal Co., capitalized at \$25,000, which will open a mine or mines in Harrison County near Nutter Fort. Those most largely interested in the new company are: Clayton G. Young, W. G. Kester, U. O. Wright, all of Miller Fort.

Pond Creek is to be the scene of operations of the R. G. Baden Coal Co. This company has just been organized, the capital stock having been fixed at \$100,000. The principal figures in the new company are W. J. Bailey, H. H. Randolph, R. G. Bailey, C. A. Hammond and L. B. Saunders, all of Williamson.

The New River Coal Co. has filed in the district court for the southern district of West Virginia a suit in assumpsit against the government of the United States for

\$40,000 damages representing coal confiscated by the Navy and not paid for. This suit is an outgrowth of the practice of the Navy in commandeering smokeless coal at an arbitrary price without regard to the market or contracts and without making any serious effort to reach an agreement with smokeless operators on prices. Much of the coal commandeered was being shipped on contract at a price in excess of that which the Navy was willing to pay. The New River company suit represents the difference between the contract price and the price at which the coal was commandeered.

Less coal was produced in the coal fields tapped by the Norfolk & Western Railroad during the year 1920 than during the year 1919, by at least 706,000 tons, that at least being the decrease for the first ten months of 1920. However, in 1920 the total volume of coal and coke combined amounted to 30,000,000 tons. A shortage of equipment and the strike in the Thacker field were chiefly responsible for the decrease in 1920 production. The Norfolk & Western during 1921 through the purchase of additional equipment will be in a position to make an increase in freight tonnage possible.

Little damage was done in a fire which broke out in the main entrance of the first street mine of the Richland Coal Co. at Moundsville on Jan. 14. Accumulated gas was ignited by powder. Miners in other parts of the mine escaped as soon as the fire broke out. Before it had gained any headway miners and members of the mine rescue station at Wheeling had the fire out, it being possible for the night shift to go into the mines the same evening.

Personals

John G. Kerr, secretary-treasurer of the Colorado and New Mexico Coal Operators' Association, with headquarters in Denver, has resigned and will leave the association Feb. 1 to engage in the coal brokerage business. He will be succeeded by George Williams, formerly with the Colorado & Southern R.R., and at present traffic manager for the Amalgamated Sugar Company of Ogden. Mr. Kerr already has opened offices in the Boston Building in Denver. When the Colorado Coal Survey Committee was appointed as a war emergency division of the National Defense League, Mr. Kerr was made secretary. His quick adaptability led to his choice as secretary for the Colorado association. National association officials urged the formation of the association, it is understood, on the basis that Government business could more easily be conducted through an organization than through individuals. The association withdrew from the National Coal Association in the closing days of 1920, and a reorganization includes a program calling for greater attention to traffic problems in the Rocky Mountain territory.



JOHN G. KERR
Former Secretary-Treasurer, Colorado and New Mexico Coal Operators' Association, Denver, Colorado.

Obituary

Ferdinand Schlesinger died recently while en route to California. Mr. Schlesinger was 70 years of age. The Schlesinger interests control the coal mines of the Elkhorn Piny

Coal Mining Co. at Stanaford, W. Va., Powellton mines at Powellton, Christian mines at Mahan, St. Clair Coal Mining Co.'s operations at Eagle, Rum Creek Collieries at Dehue, and the Elkhorn mines at Weeks-bury, Ky.

N. J. Woods, of Huntington, president of the Central West Virginia Fuel Co., died at Philadelphia on Jan. 6 of spinal meningitis. His death was entirely unexpected. Prior to locating in Huntington about a year ago, he was an active figure in the Dickinson Fuel Co., with headquarters at Charleston, but severed his connection with that company to organize the Central West Virginia Fuel Co.

Industrial News

Washington, D. C.—The War Department recommended \$25,000 for the construction of a coal trestle and bin at the Aberdeen, Md. ammunition arsenal, which would save a yearly labor cost of \$7,000 by dumping the cars from an elevation instead of handling the 15,000 tons of coal a year by shovel. Recommendation was also made for a coal trestle at Frankford, Pa. arsenal, at a cost of \$100,000 to store coal adjacent to the new power plant. About 500 cars of coal a year are handled at a cost of 91c. a ton. The trestle would enable an annual saving of \$12,285 on 15,000 tons of coal handled. Recommendation was also made for improvements to the heating plants at the Frankford and the Springfield (Mass.) arsenals, which, it is estimated, would mean a saving of 10 per cent of coal consumed.

Traffic News

Just and reasonable rules, regulations and practices regarding car service at their mines is requested by the Fairmont & Cleveland Coal Co., of Fairmont, W. Va., and the New River Co. of MacDonald, W. Va., in complaints filed with the I. C. C. The complaints allege that the present practices are unjust, unreasonable, unduly preferential and prejudicial.

The I. C. C. has suspended until May 1 tariffs of the Minneapolis & St. Louis R.R. and the Chicago, St. Paul, Minneapolis & Omaha R.R., which increase switching charges on coal and coke \$6 per car between industries at Minneapolis, Hopkins and St. Louis Park, Minn.

In a complaint to the I. C. C. the Romann & Bush Pig Iron & Coke Co., of St. Louis, attacks as unreasonable the rates on sacked coal from Douglas, W. V., to Wichita Falls, Texas.

In the complaint of the Seaboard By-Product Coke Co., of New Jersey, the I. C. C. holds that the rates on coal from

mines in the Connellsville, Pa., district to Seaboard, N. J., are unreasonable and awards the company reparation.

In the complaint of the Hord Alakli Products Co., the commission decided that the rates on slack coal from the Sheridan, Wyo., group of mines to Antioch, Holland and Lakeside, Neb., are not unreasonable except during the period from June 25, 1918, to Feb. 19, 1919. The rates on the traffic are declared not unjustly discriminatory or unduly prejudicial.

The commission has suspended until May 6 proposed schedules of the A. T. and S. F. R.R., which propose to cancel the rule for the construction of through rates on coal.

In a complaint to the commission the Chicago Sewer Pipe Co. attacks the rates of 70 and 60c. per ton on coal from points in the Brazil, Ind., district to Chicago as unjust.

In the case of the Empire Steel and Iron Co., an I. C. C. examiner recommends that the maintenance by the Central R.R. of New Jersey of junction point rates on coal to points on the Morristown and Erie R.R., while contemporaneously refusing to maintain junction point rates on coal to points on the Mount Hope Mineral R.R. is not unduly prejudicial to complaining interests.

Coming Meetings

National Chamber of Commerce will hold its ninth annual meeting at Atlantic City, N. J., April 27, 28 and 29.

American Institute of Electrical Engineers' midwinter convention will be held on Feb. 16, 17 and 18 at the United Engineering Societies Building, 33 West 39th St., New York City. Secretary, F. L. Hutchinson, 33 West 39th St., New York City.

National Civic Federation at its 21st annual meeting, to be held at Hotel Astor, New York City, will discuss international, European and American labor problems. Chairman Executive Council, Metropolitan Tower, New York City.

American Institute of Mining and Metallurgical Engineers' annual meeting will be held in New York, Feb. 14 to 17, 1921. Secretary, Bradley Stoughton, 29 West 39th St., New York City.

Northwest Mining Congress will hold its annual convention Feb. 28 to March 5, 1921.

Northern West Virginia Coal Operators' Association will hold its annual meeting Feb. 8, 1921. Secretary, H. S. Rogers, Fairmont, W. Va.

Pittsburgh Vein Operators' Association of Ohio will hold its annual meeting, Feb. 14, 1921, at Cleveland, Ohio. Secretary, D. F. Hurd, 415 Marion Building, Cleveland.

Canadian Institute of Mining and Metallurgy will hold its annual meeting March 2, 3 and 4, 1921, at Ottawa, Ontario, Canada. Secretary-Treasurer, G. C. Mackenzie, Montreal, Quebec, Canada.